

240

**SERVICE
MANUAL**

2238B

marantz

model 2238B

Stereophonic Receiver

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1. INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 2238B Stereophonic Receiver.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operations in the receiver.

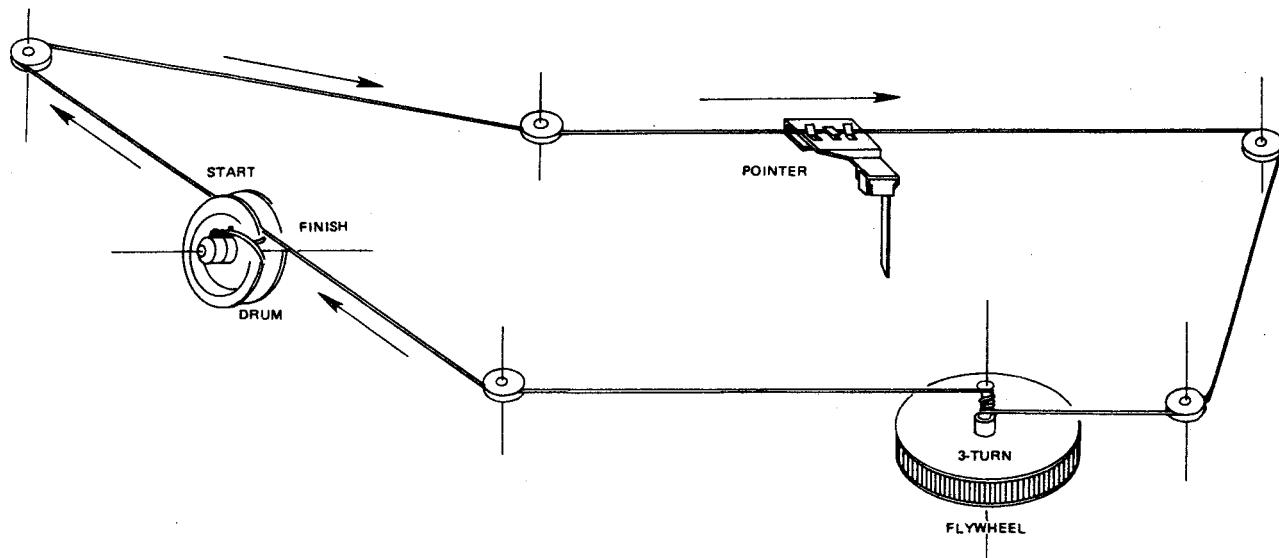
The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A simple description is included for parts which can usually be obtained through local suppliers.

2. SERVICE NOTES

As can be seen from the circuit diagram, the chassis of Model 2238B consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. FM Front End mounted on P.W.B. P100
2. Tuner mounted on P.W.B. P200
3. Phono Equalizer Amp & Selector ... mounted on P.W.B. P400
4. Main Amp, Power Supply & Speaker Switch mounted on P.W.B. P700
5. Tone Amp, Mono, Hi Filter, Tape 1 Monitor & FM 25 μ S mounted on P.W.B. PE01
6. Dial Lamp mounted on P.W.B. PZ01
7. DLB-1 Socket mounted on P.W.B. PK01

Figure 1. Dial Stringing



3. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing the Model 2238B Receiver.

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal source for AM alignment
Test Loop		Use with AM Signal Generator
FM Signal Generator MPX Signal Generator	Sound Technology Model 1000A	Signal source for FM alignment Stereo separation alignment and trouble shooting
Distortion Analyzer Audio Oscillator AC VTVM	Sound Technology Model 1700A	Distortion measurements Sine wave and squarewave signal source Voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting and ASO alignment
Frequency Counter	Fluke Model 1900A	MPX Oscillator adjustment (VCO)
Circuit Tester		Trouble shooting
DC VTVM	Fluke Model 8000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to amplifier
AC Ammeter	Commercial Grade (1~10A)	Monitors amplifier output under short circuit condition
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to amplifier
Variable Autotransformer	Superior Electronic Co., Powerstat Model 116B-10A	Adjusts level of primary power to amplifier
Shorting Plug	Use phono plug with 600-ohm across center pin and shell	Shorts amplifier input to eliminate noise pickup
Output Load (8 ohms, $\pm 0.5\%$, 100W)	Commercial Grade	Provides 8-ohm load for amplifier output termination
Output Load (4 ohms, $\pm 0.5\%$, 100W)	Commercial Grade	Provides 4-ohm load for amplifier output termination

4. AM ALIGNMENT PROCEDURE

4.1 AM IF ALIGNMENT

1. Connect a sweep generator to the L153 and an alignment scope to the J233.
2. Rotate each core of IF transformers L155 and L156 for the maximum height and flat top symmetrical response.

4.2 AM FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Set AM signal generator to 515 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil L154 for maximum audio output.

2. Set the signal generator to 1650 kHz. Place the tuning pointer in the high frequency end and adjust the oscillator trimmer on the oscillator tuning capacitor for maximum audio output.
3. Repeat steps 1 and 2 until no further adjustment is necessary.
4. Set the generator to 600 kHz, tune the receiver to the same frequency and adjust a slug core of AM ferrite-rod antenna L001 for maximum output.
5. Set the generator to 1400 kHz and tune the receiver to the same frequency and adjust the trimming capacitor on the antenna tuning capacitor for maximum output.
6. Repeat procedures 4 and 5 until no further adjustment is necessary.

NOTE

During tracking alignment reduce the signal generator output as necessary to avoid AGC action.

5. FM ALIGNMENT PROCEDURE

5.1 FM FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Connect an FM signal generator to the FM antenna terminals and oscilloscope and an audio distortion analyzer to the TAPE OUT jacks on the rear panel.
2. Set the generator to 87.4 MHz and provide about 3 to 5 μ V. Place the tuning pointer at the low frequency end by rotating the tuning knob and adjust the pitch of oscillator coil L107 to obtain maximum audio output.
3. Set the generator to 109 MHz and provide about 3 to 5 μ V. Rotate the tuning knob and place the tuning pointer at the high frequency end and adjust the trimming capacitor C121 for maximum output.
4. Repeat steps 2 and 3 until no further adjustment is necessary.
5. Set the generator to 90 MHz and tune the receiver to the same frequency. Decrease signal generator output until the audio output level decreases with the decreasing generator output. Adjust the pitch of antenna coil L102 and RF coil L104 for maximum output.
6. Set the generator to 106 MHz and tune the receiver to the same frequency. Decrease the signal generator output until the audio output level decreases with the decreasing generator output. Adjust the trimming capacitors of antenna and RF tuning circuits for maximum output.
7. Repeat steps 5 and 6 until no further adjustment is necessary.
8. Adjust the primary core (lower core) of discriminator transformer L202 so that the center tuning meter pointer indicates its center at no signal applied. Set the

FM signal generator to 98 MHz and increase its output level 1 μ V and tune the receiver to the same frequency so that the center tuning meter pointer indicates its center. Adjust the secondary core (upper core) of L202 for minimum distortion.

5.2 STEREO SEPARATION ALIGNMENT

1. Set the FM signal generator to provide 1 μ V at 98 MHz. Tune the receiver to the same frequency so that the center tuning meter pointer indicates its center. Then turn off the modulation of the generator, connect a frequency counter to test point J229 and adjust R301 so that the frequency counter may precisely read 76 kHz.
2. Modulate the generator with stereo composite signal consisting of only L or R channel (of course a pilot signal must be included).
3. Adjust the trimming resistor R317 for maximum and same separation in both channels.

5.3 MUTING THRESHOLD ADJUSTMENT

1. Set the FM signal generator output to provide 12.5 μ V (IHF) at 98 MHz and tune receiver to the same frequency. Adjust the trimming resistor R212 for the threshold level of 12.5 μ V. (During this adjustment turn the FM MUTING pushswitch "on".)

5.4 FM DOLBY LEVEL ADJUSTMENT

1. Set the FM signal generator to provide a 400 Hz, 50% modulated 98 MHz mono signal, at 1 μ V output. Precisely tune the receiver to 98 MHz.
2. Depress the FM 25 μ s pushswitch, and adjust R215 until the outputs of both channels are 580 mV.

6. POWER AMPLIFIER ADJUSTMENT

Connect a VTVM between R763(+) and R765(-) and adjust the trimming resistor R731 until the VTVM reads 23 mV DC. And next, connect a VTVM between J717 and J714(GROUND) and adjust the trimming resistor R711 until the VTVM reads 0 mV DC. Do over again. For the other channel, connect the VTVM between R764(+) and R766(-) and adjust the R732 for the same reading, and connect the VTVM between J718 and J714 and adjust the R712 for the same reading. Do over again. When adjusting a DC offset voltage, the switch of the SPEAKER SYSTEM-1 must be turned on.

7. POWER SUPPLY ADJUSTMENT

Connect a VTVM between J722(+) and J724(-) and adjust R787 until the VTVM reads 36.0 V under no signal condition.

● EUROPEAN MODEL

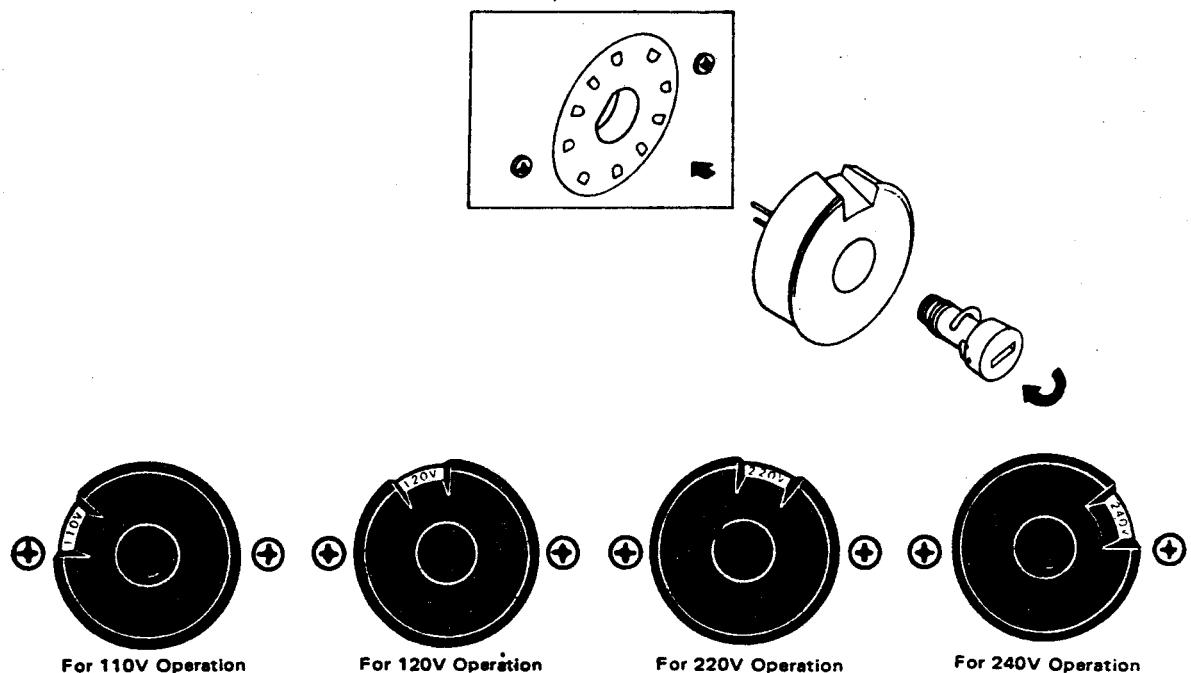
8. VOLTAGE CONVERSION

The European version of the Model 2238B is equipped with universal power transformer that may be adjusted to operate at 110 V, 120 V, 220 V or 240 V AC at 50 to 60 Hz. To convert the unit to a different power source voltage, reposition conversion plug as shown in Figure 2.

CAUTION

DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

Figure 2. Voltage Conversion Chart



9. FTZ REGULATION

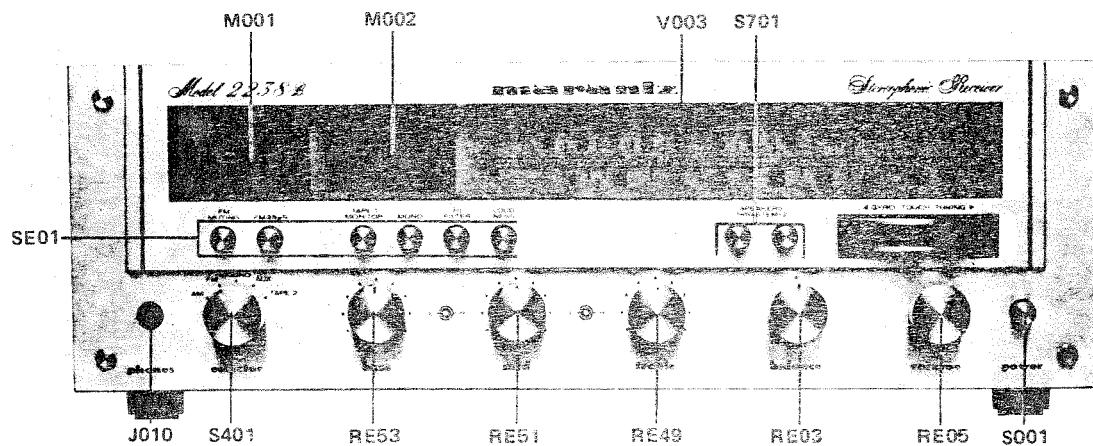
Instruction for the use
in the range other than specified in FTZ codes

Achtung für die Leute, die in dem Gebiet wohnen,
wo die FTZ-Bestimmungen vorherrschend sind.

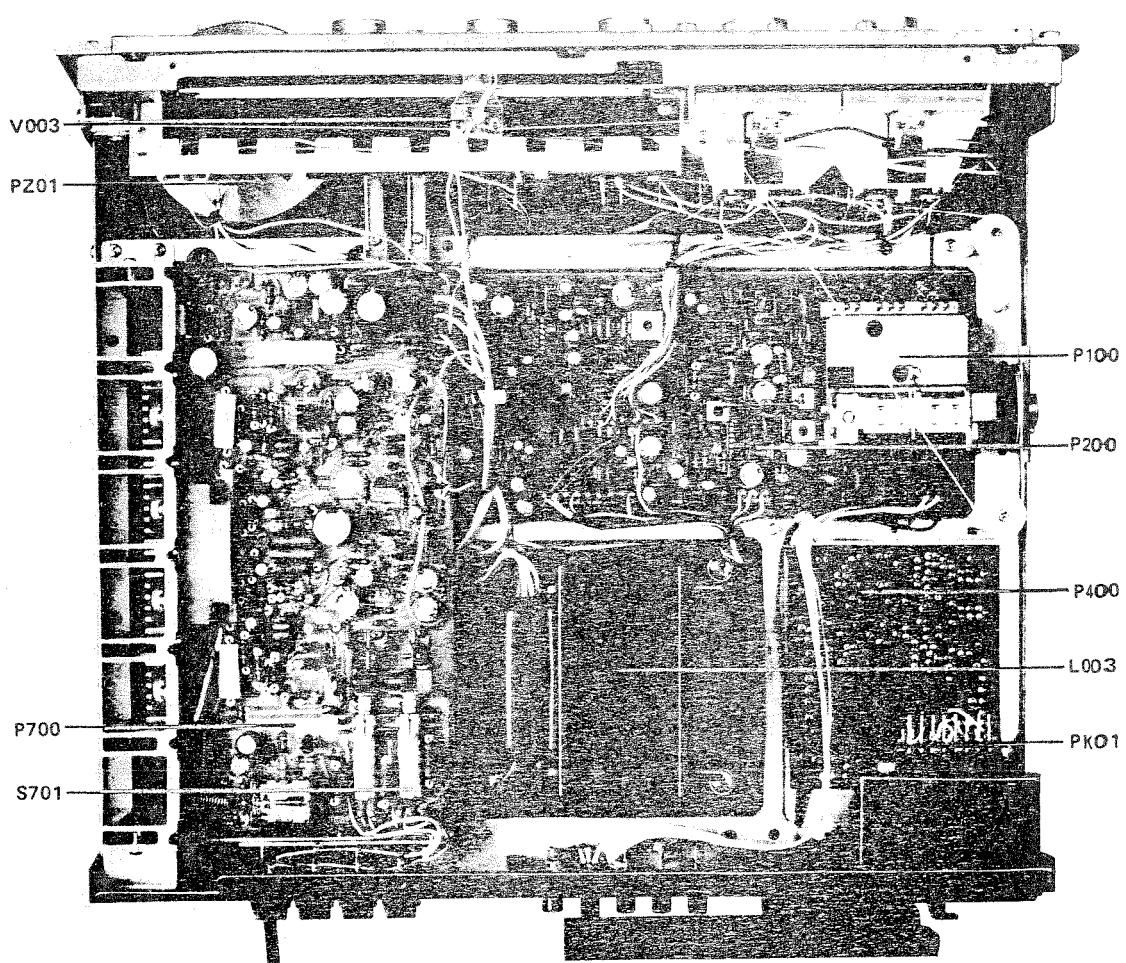
Sollte das Gerät auch für Frequenzen außerhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangsbereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatospule (in der Abbildung mit „FTZ“ gekennzeichnet) so zu korrigieren, daß er den Bestimmungen entspricht.

10. MAJOR COMPONENT LOCATIONS

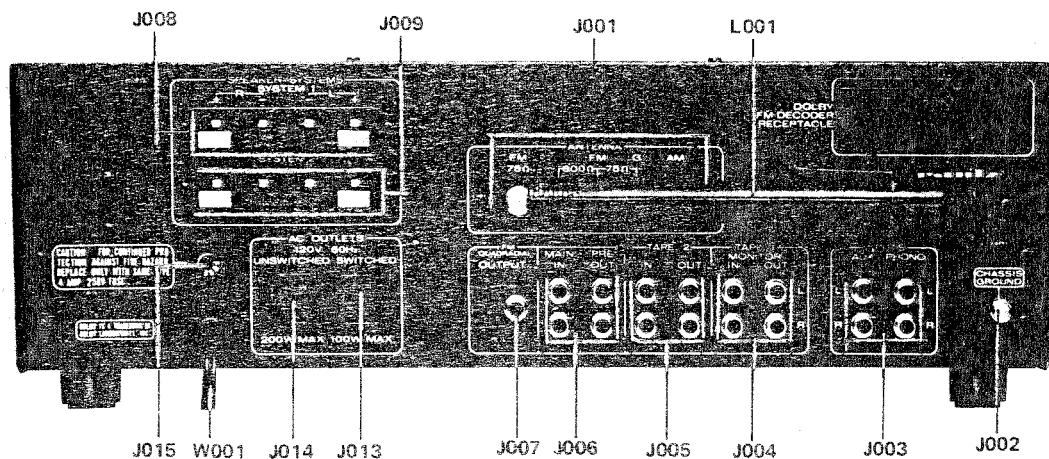
10.1 Front Panel Adjustment and Component Locations



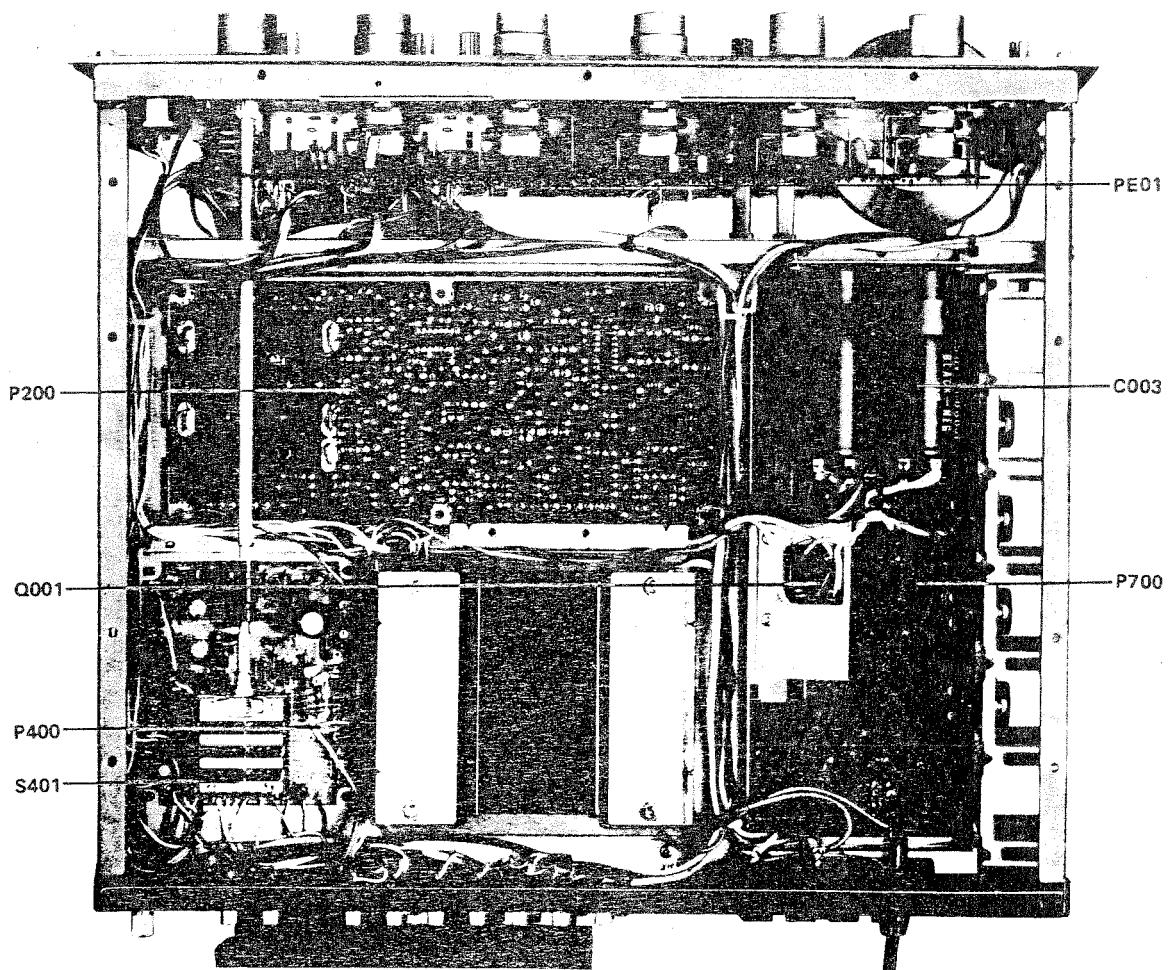
10.2 Main Chassis Component Locations (Top View)



10.3 Rear Panel Adjustment and Component Locations

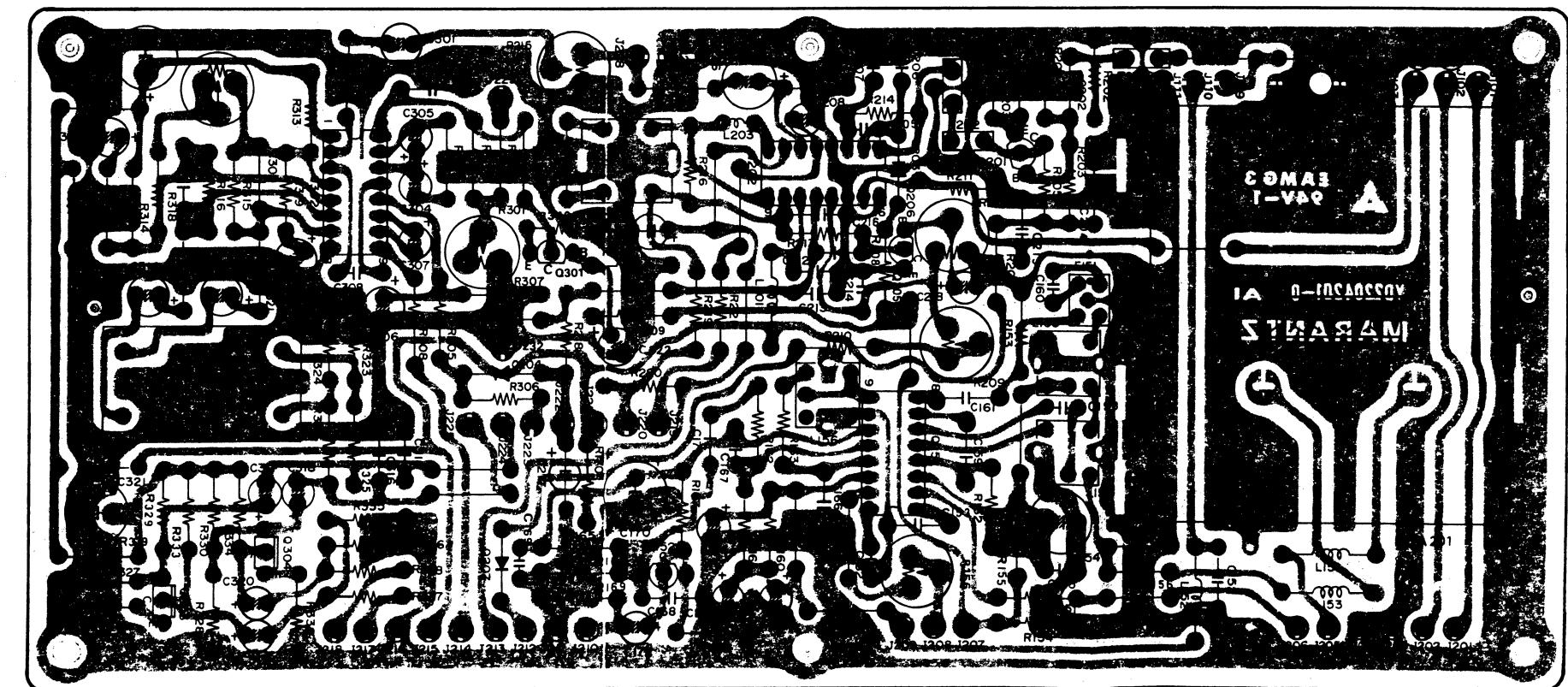
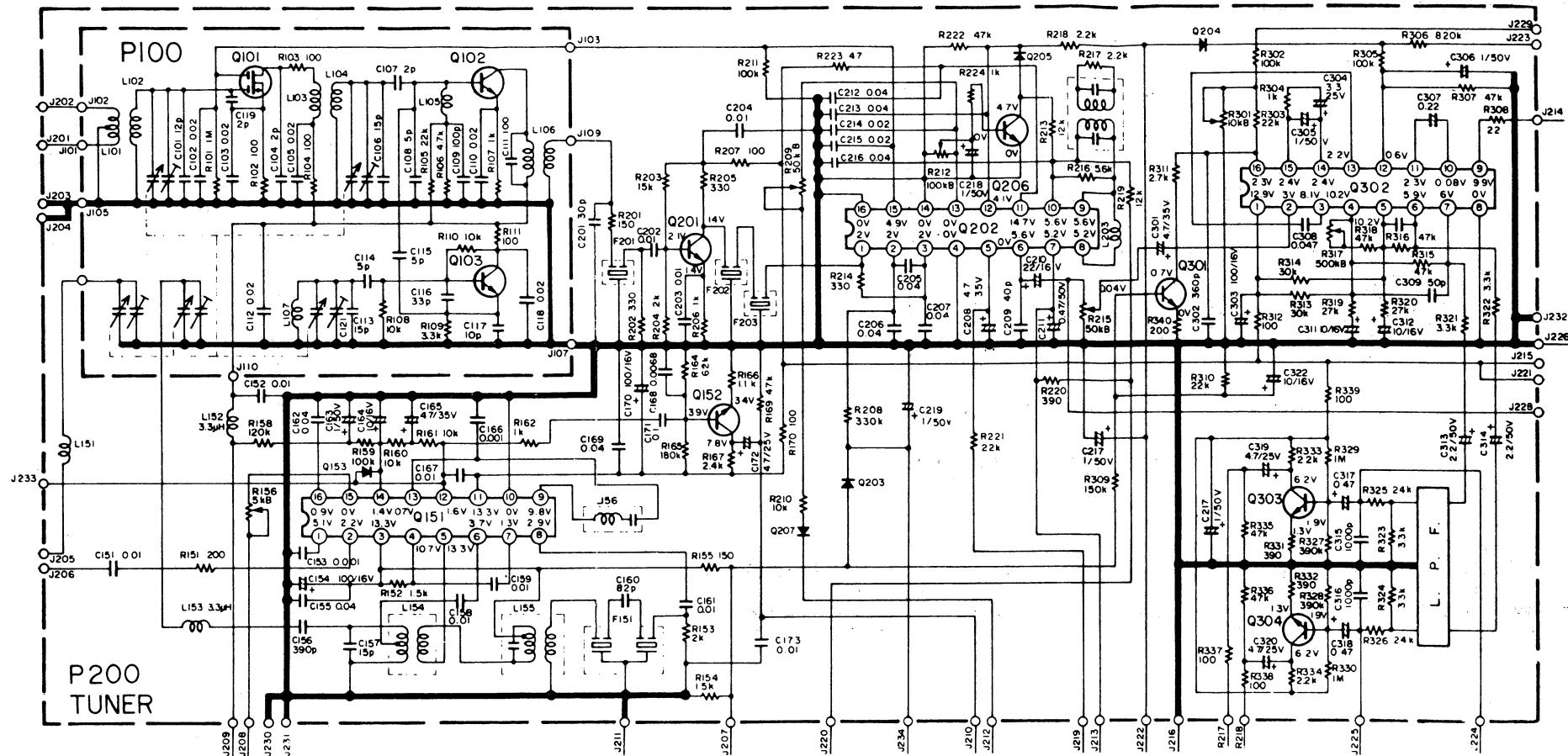


10.4 Main Chassis Component Locations (Bottom View)

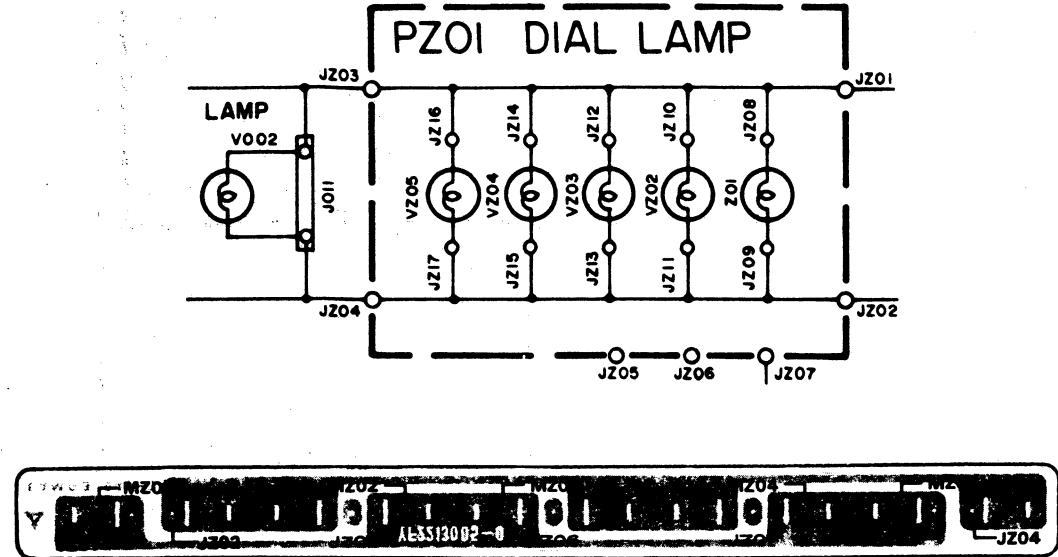


11. DIAGRAM AND COMPONENT LOCATIONS

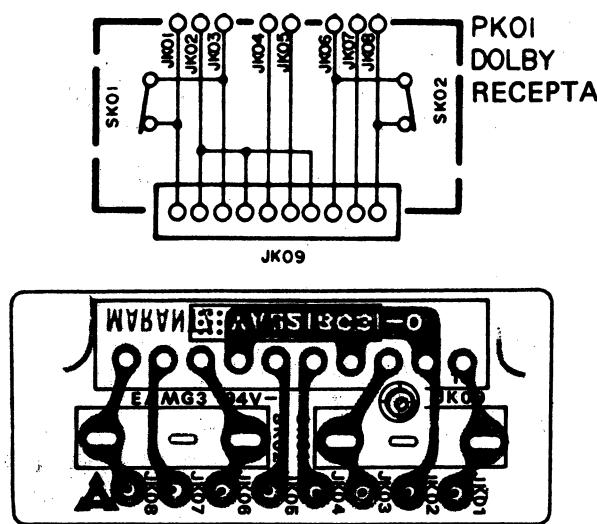
11.1 FM & AM Tuner Assembly (P200) Schematic Diagram and Component Locations



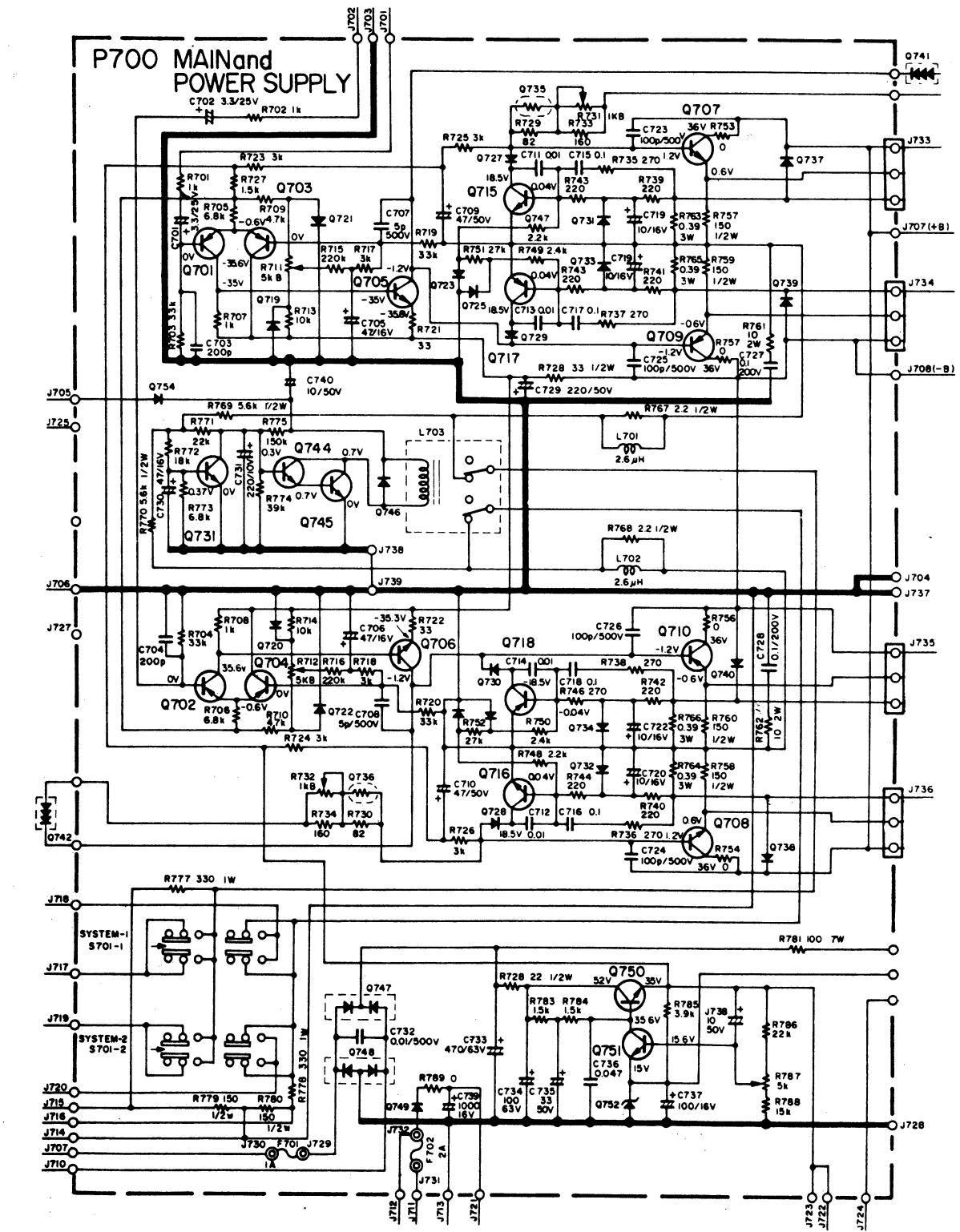
11.2 Dial Lamp Assembly (PZ01) Schematic Diagram and Component Locations

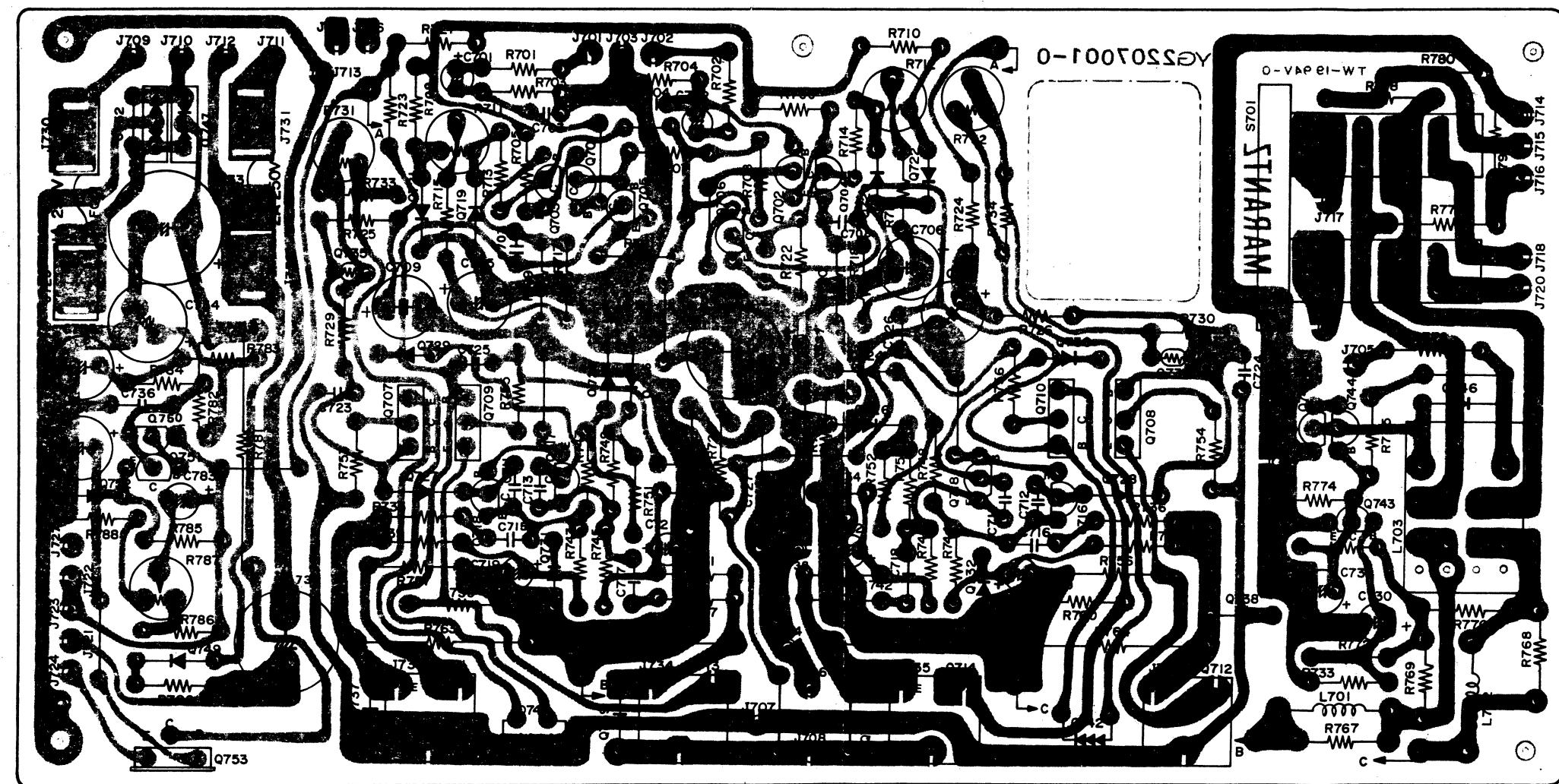


11.3 DLB-1 Socket Assembly (PK01) Schematic Diagram and Component Locations

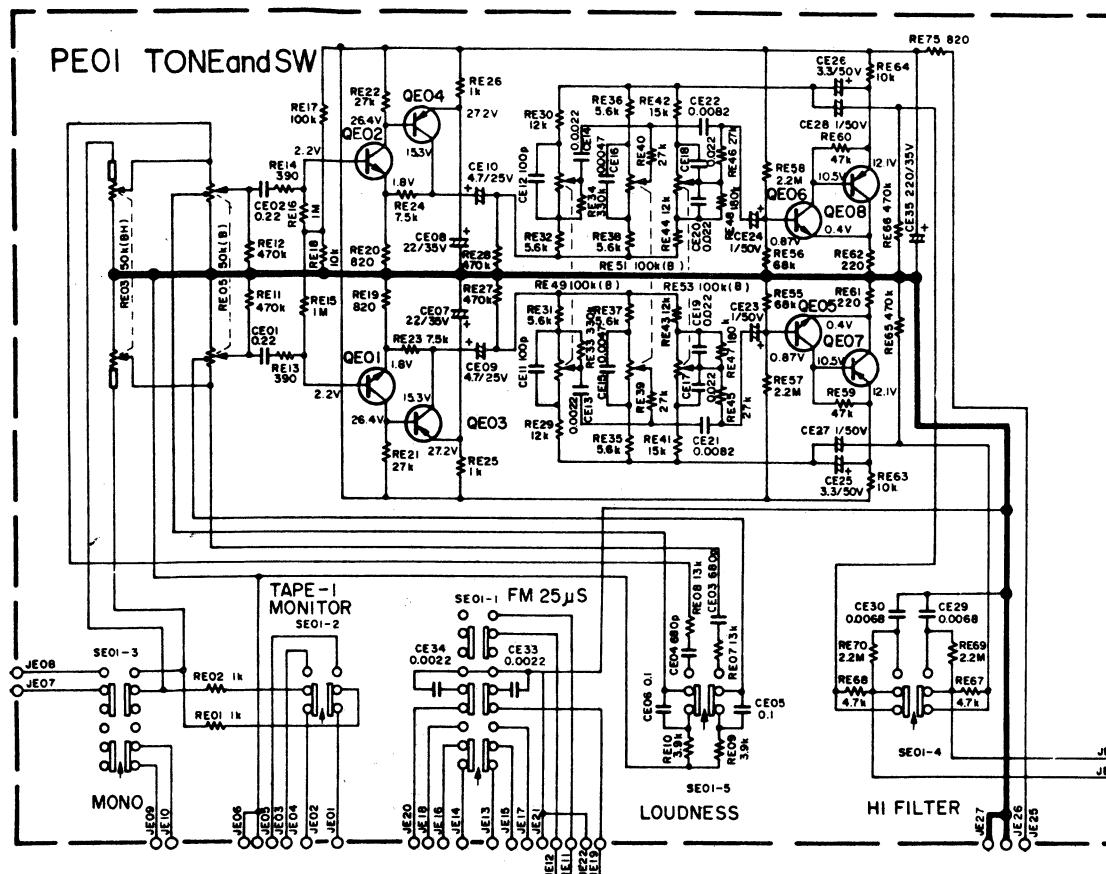


11.4 Main Amp. & Power Supply Assembly (P700) Schematic Diagram and Component Locations

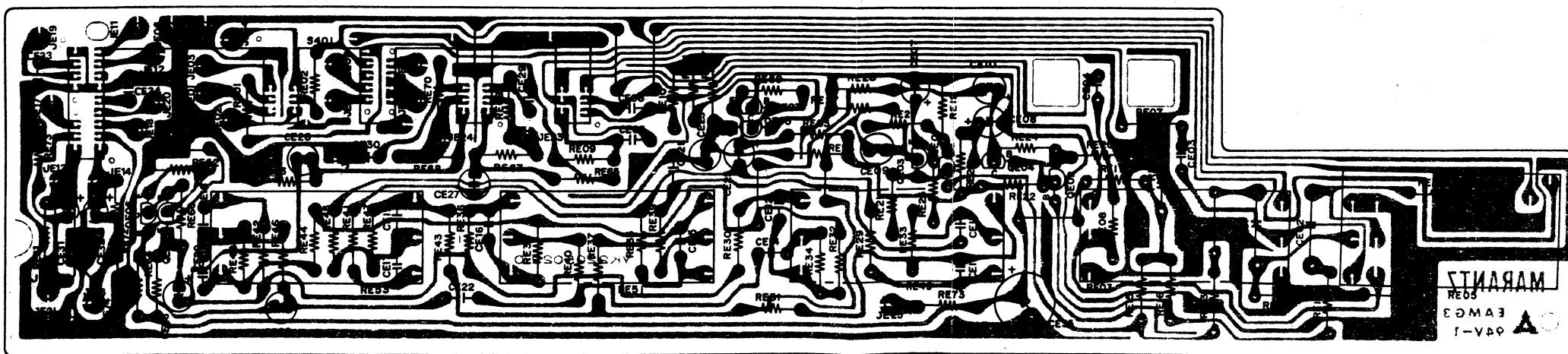
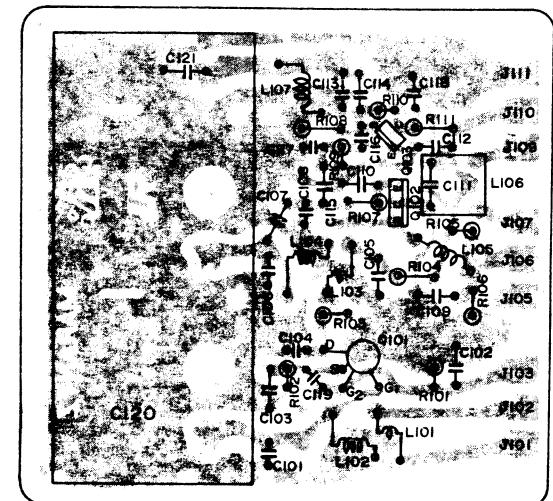
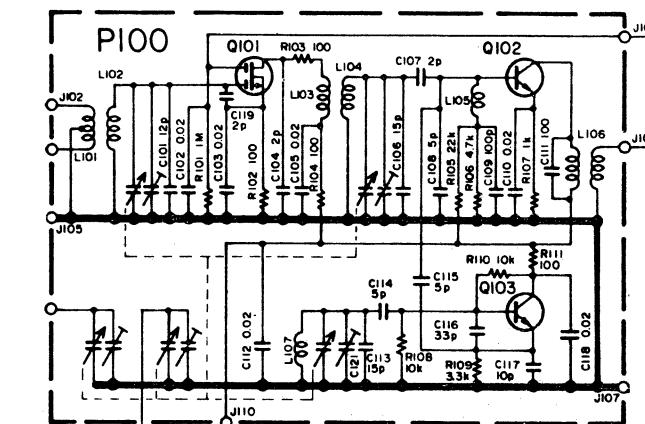




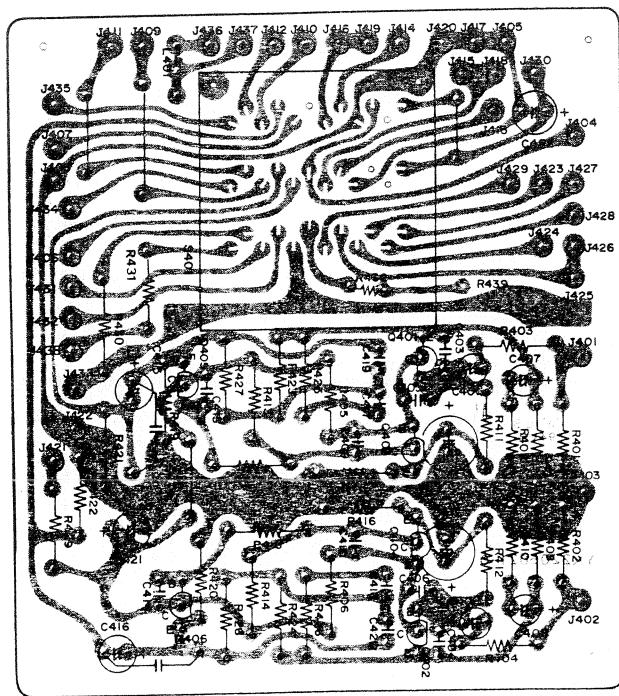
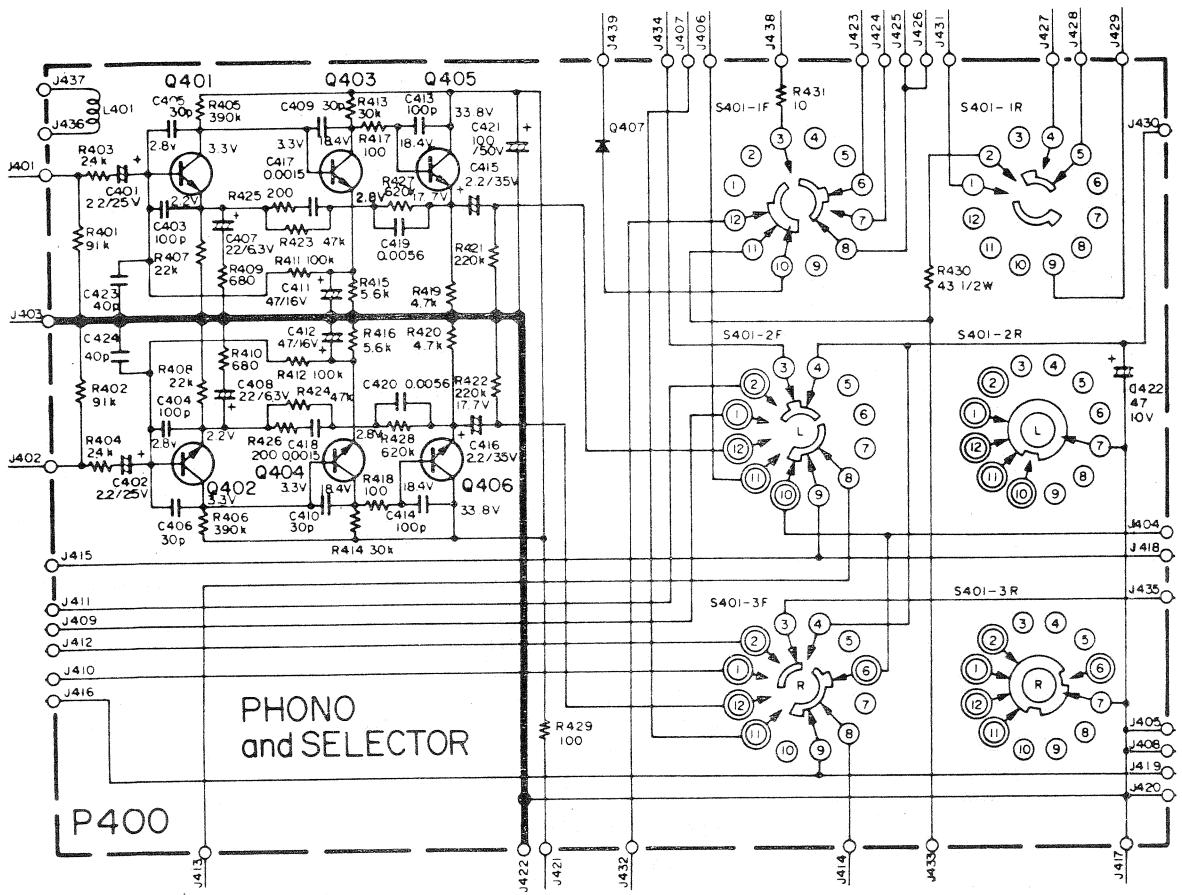
11.5 Tone Amp. Assembly (PE01) Schematic Diagram and Component Locations



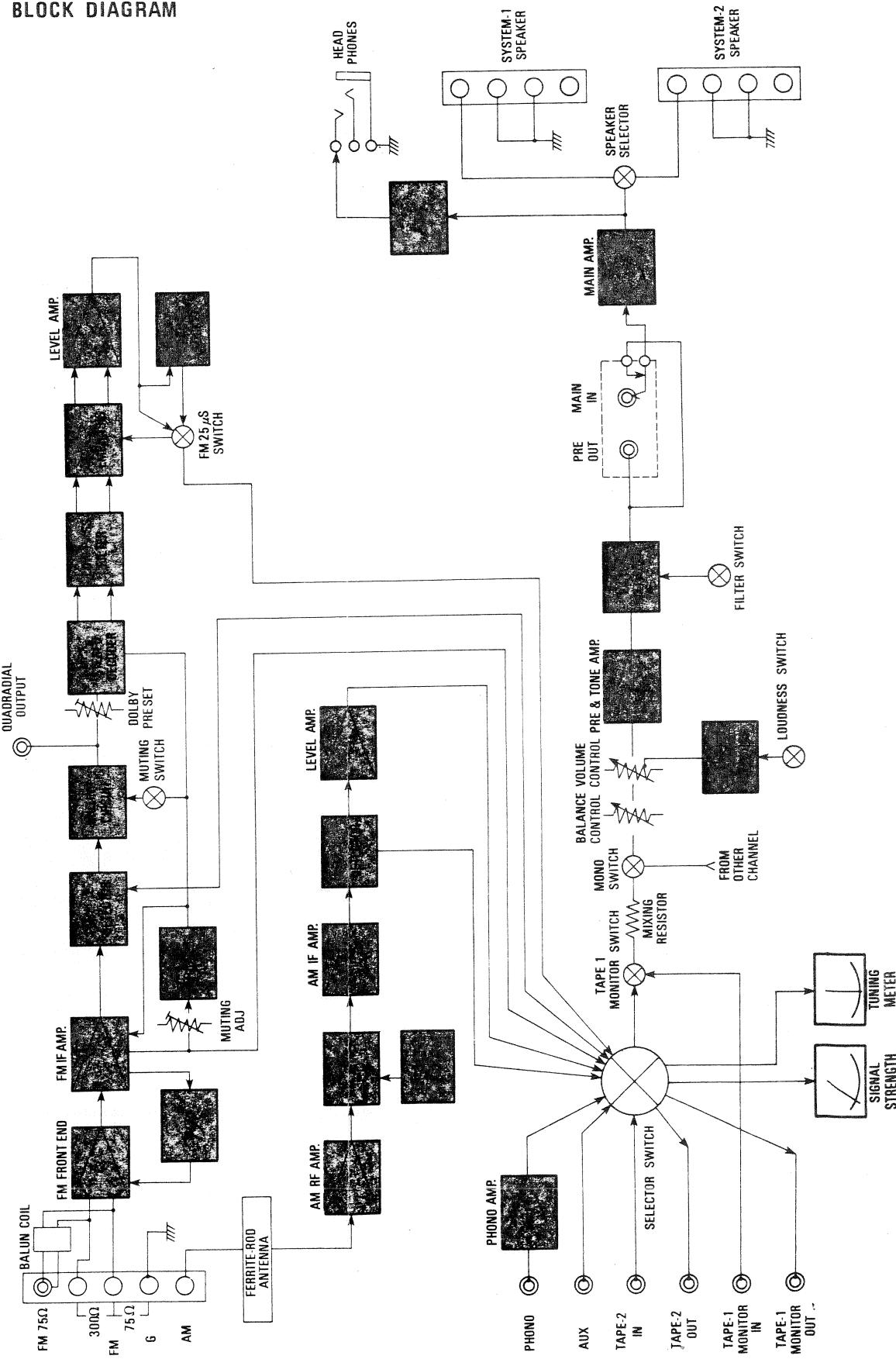
11.6 FM Front End Assembly (P100) Schematic Diagram and Component Locations



11.7 EQ Amp. Assembly (P400) Schematic Diagram and Component Locations

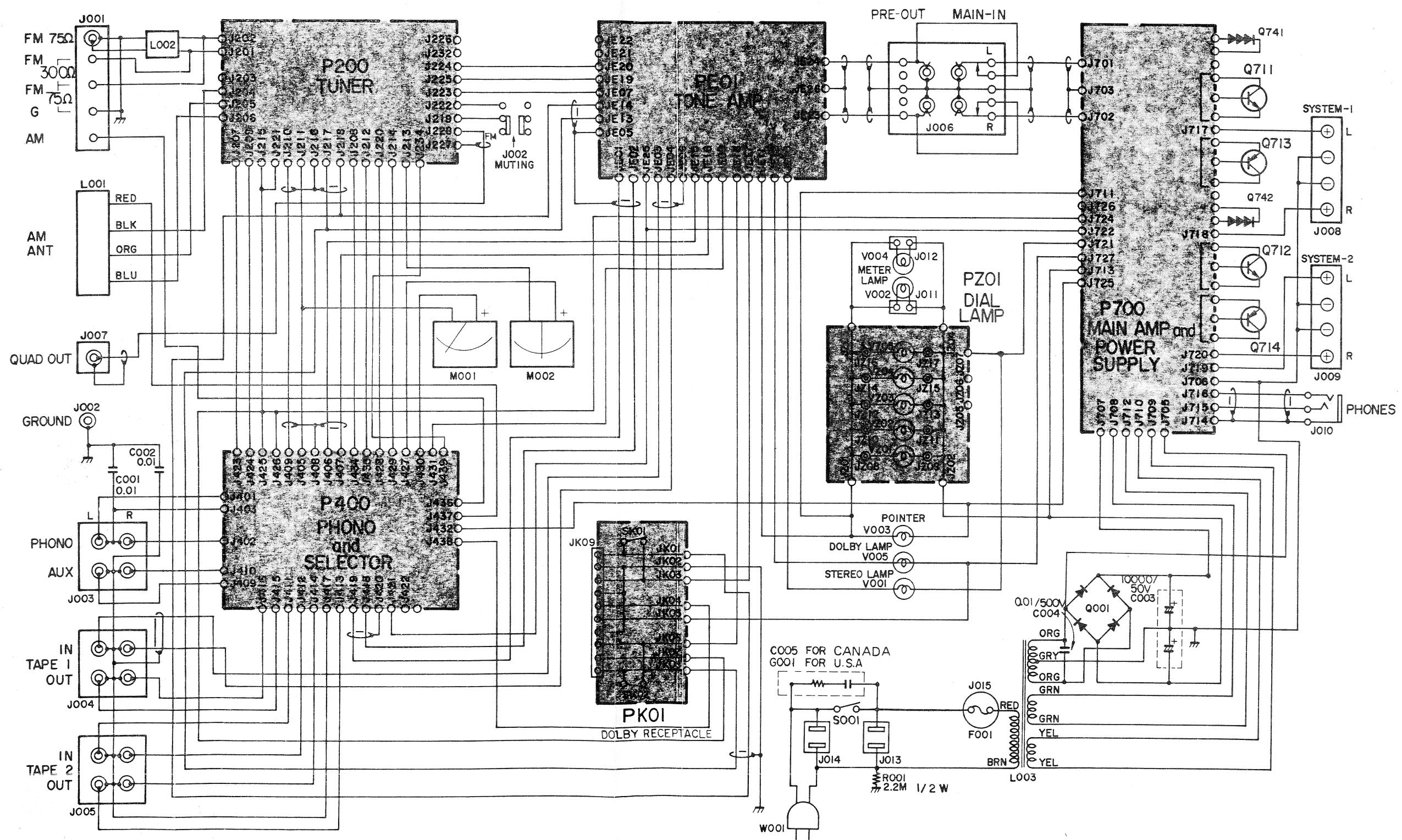


12. BLOCK DIAGRAM

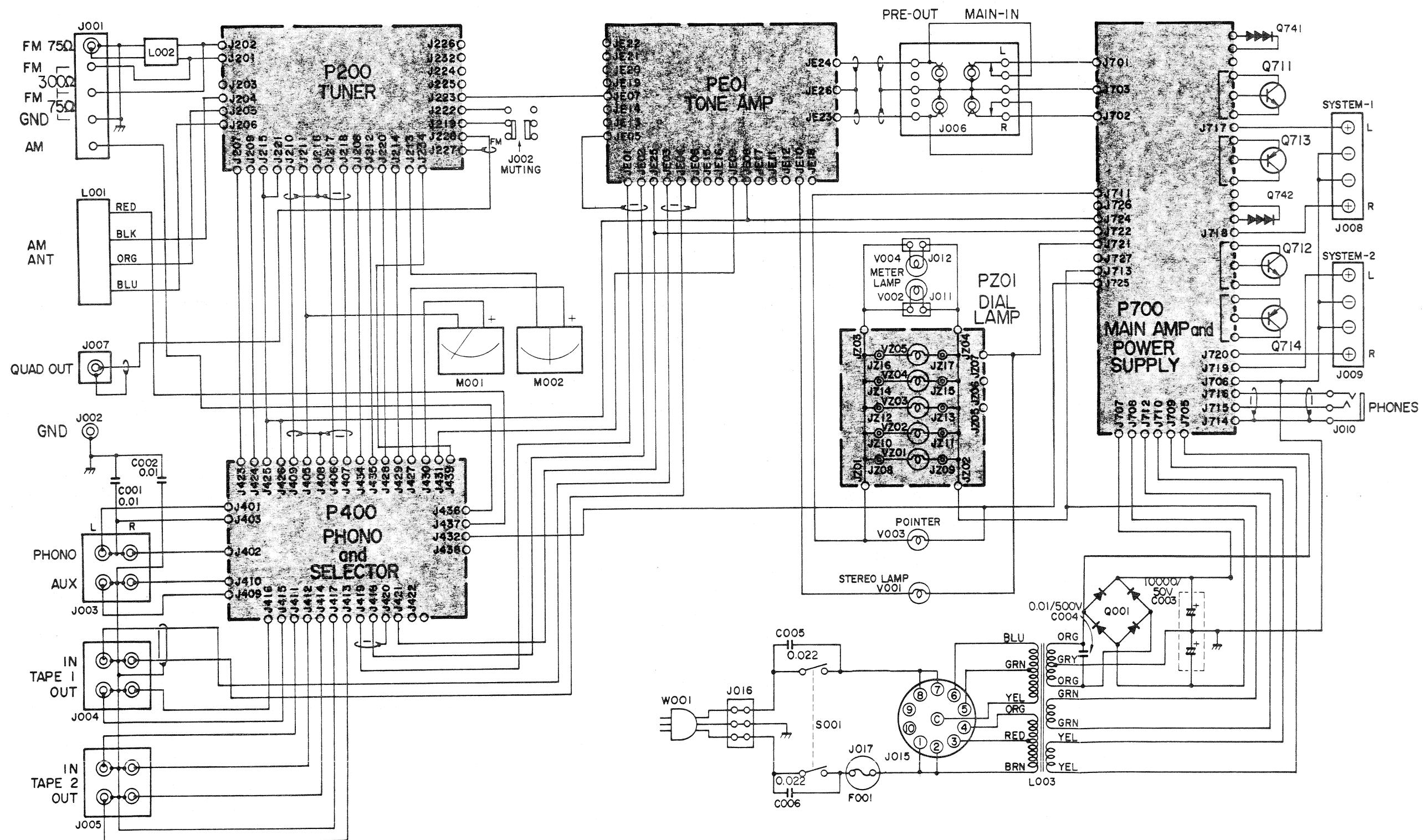


13. CONNECTION DIAGRAMS

13.1 For U.S.A. & Canadian Models



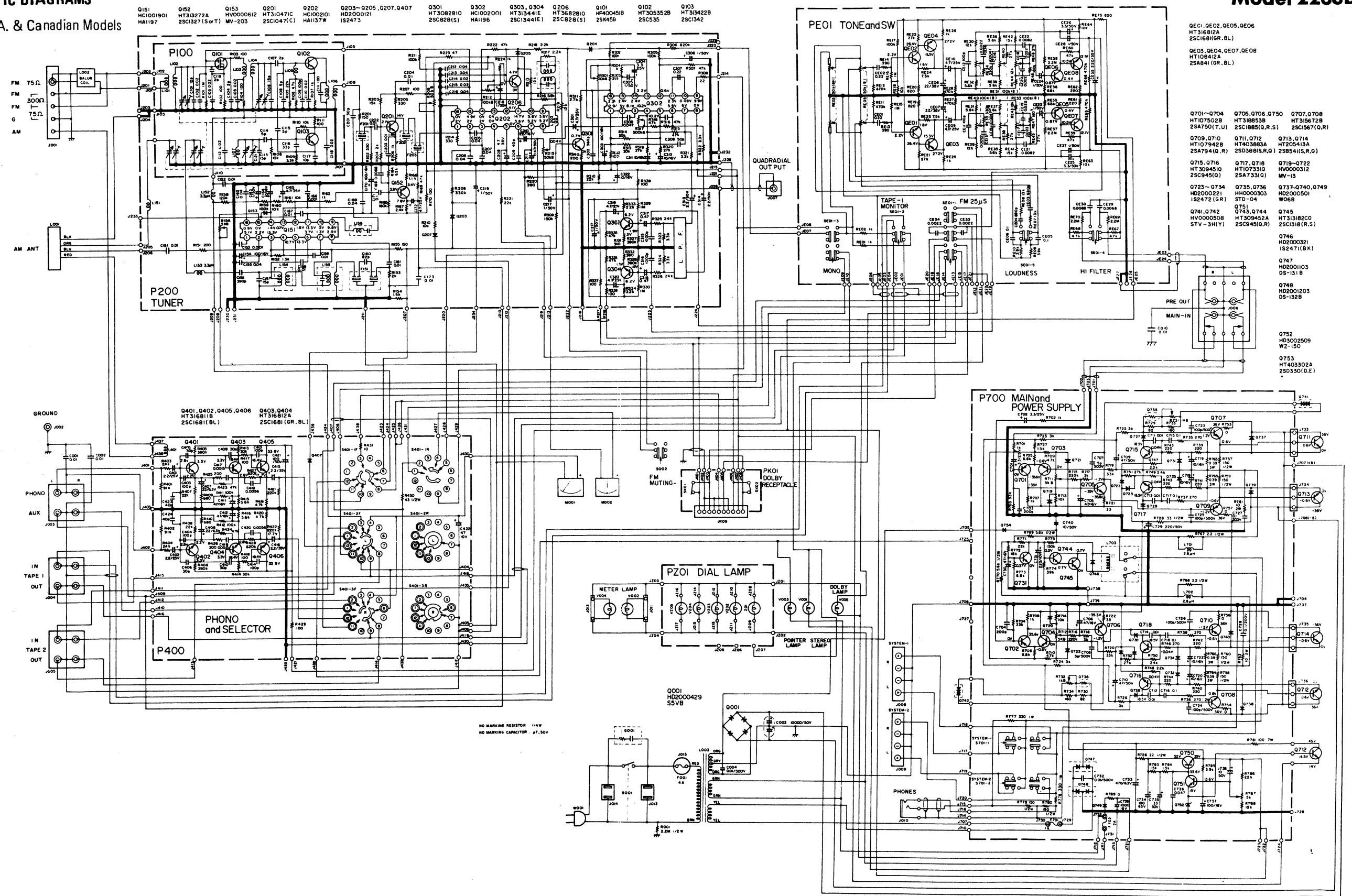
13.2 For European Model



Model 2238B

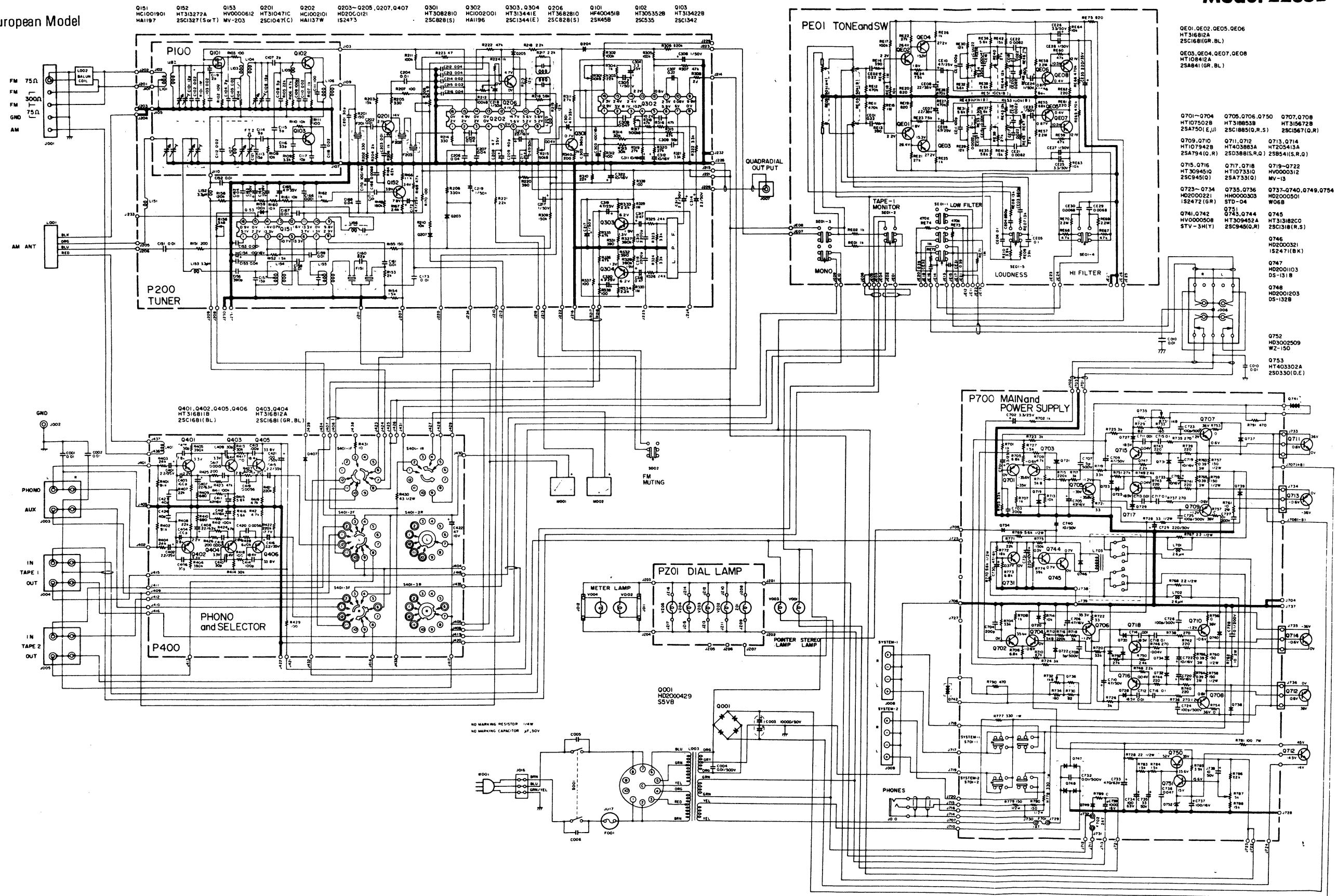
14. SCHEMATIC DIAGRAMS

14.1 For U.S.A. & Canadian Models



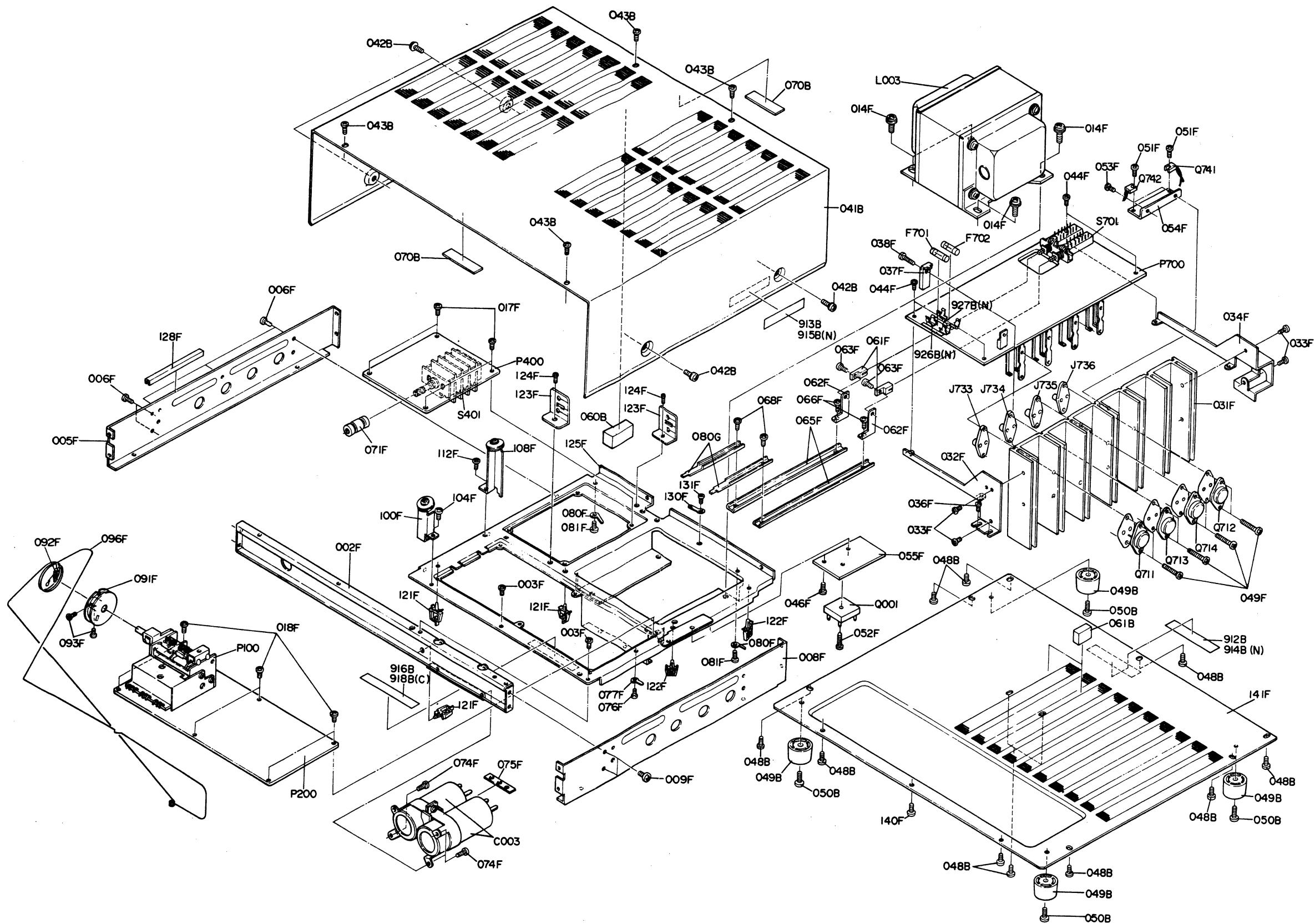
Model 2238B

14.2 For European Model

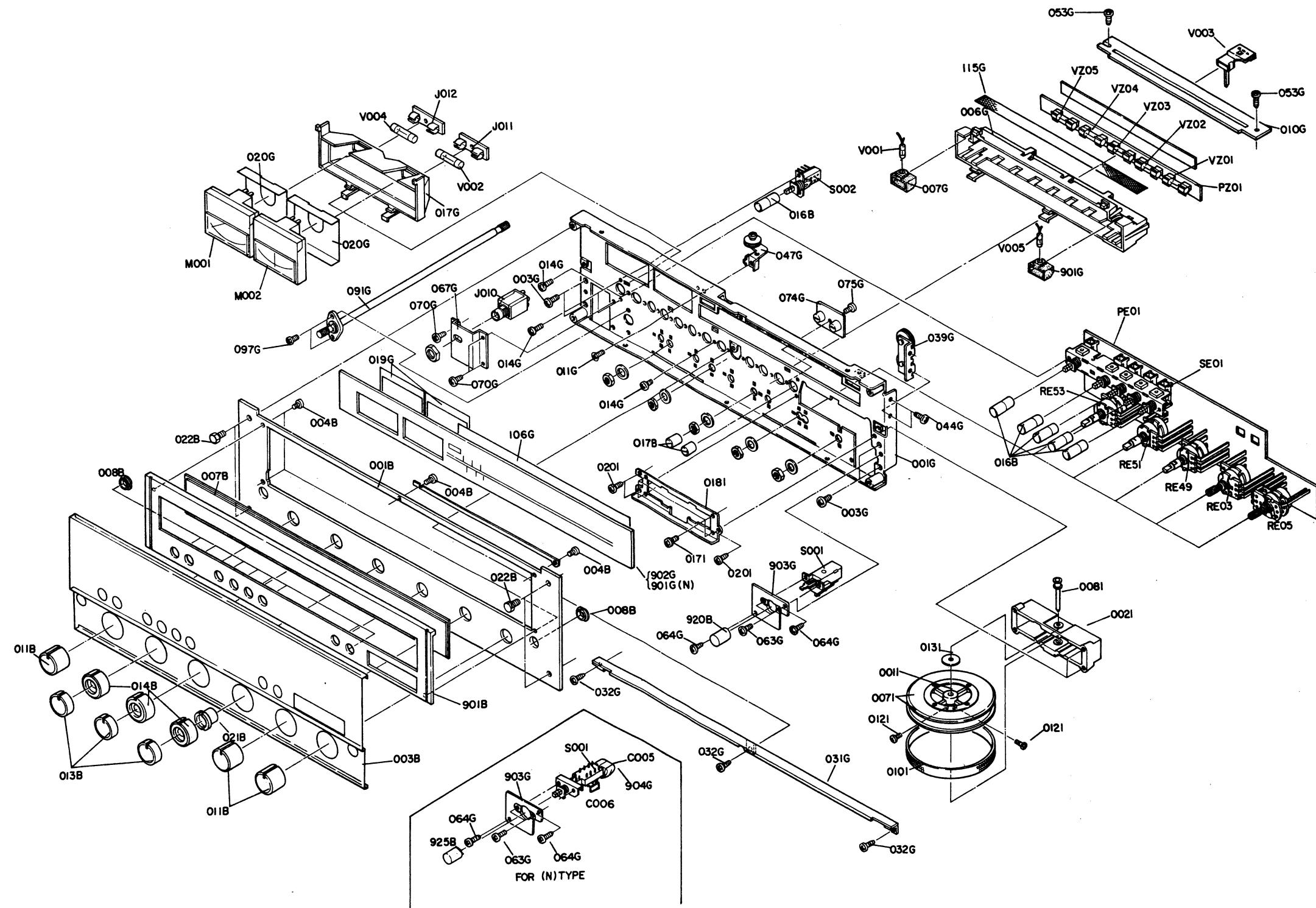


15. EXPLODED MECHANICAL DIAGRAMS

15.1 Cabinet

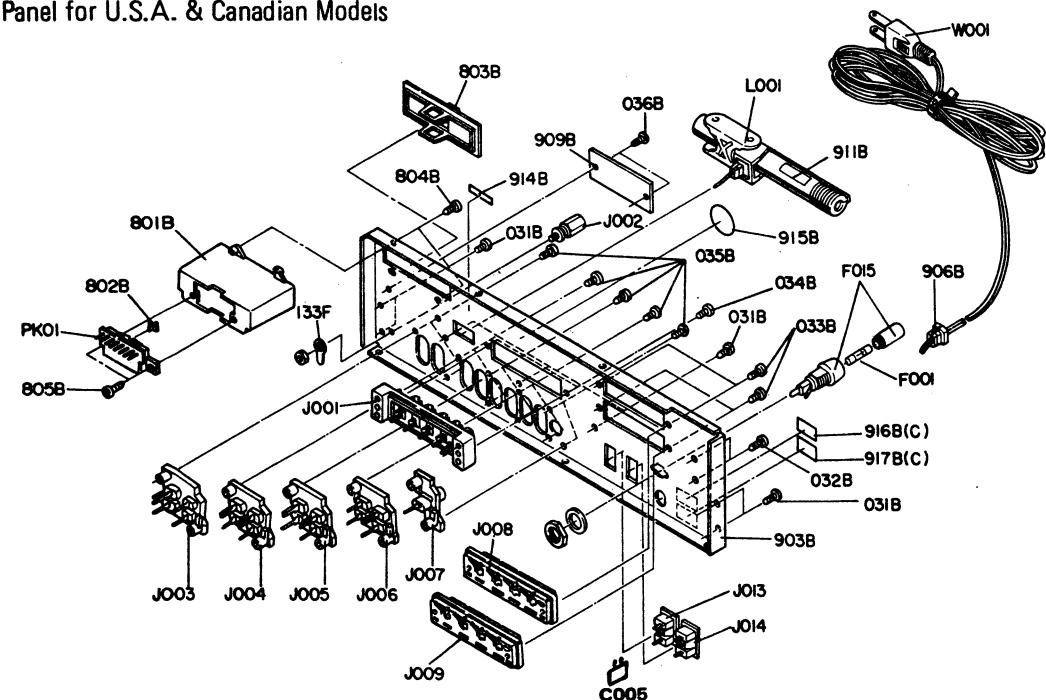


15.2 Chassis

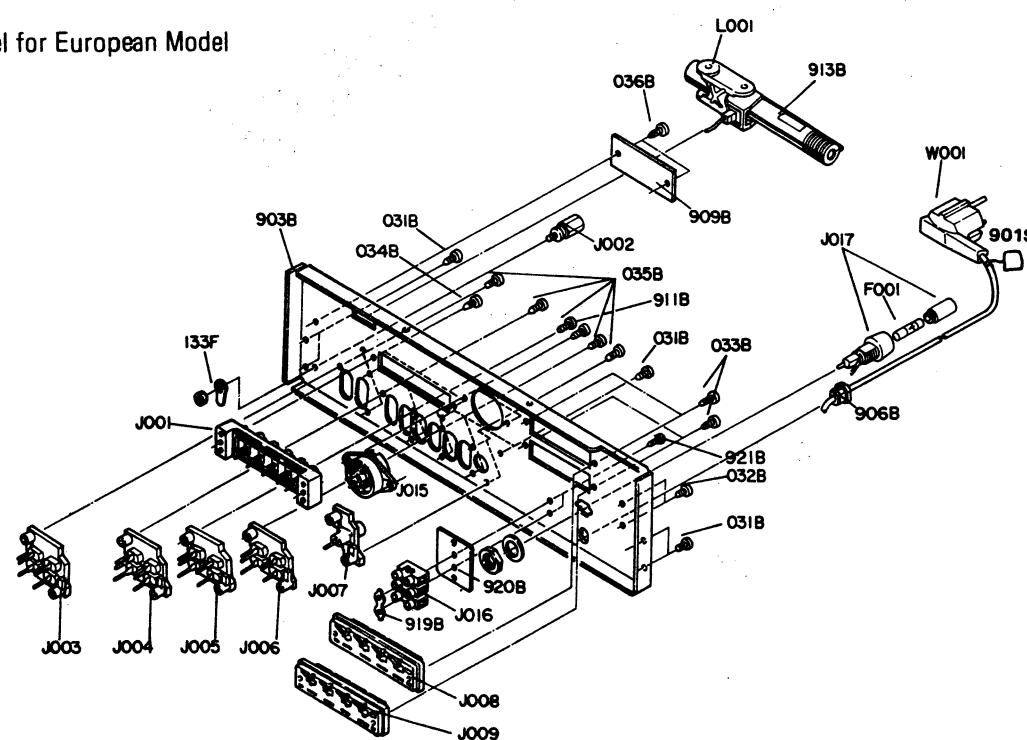


16. PACKING MATERIAL EXPLODED VIEW

15.3 Rear Panel for U.S.A. & Canadian Models



15.4 Rear Panel for European Model



This diagram shows an exploded view of a mechanical assembly. The main components include a central rectangular part with a ribbed base, a smaller rectangular component to its left, and a long, thin, ribbed component extending to the right. Various parts are labeled with codes:

- 003S(U,C,N)
- 005S(U,C,N)
- 012S(U,C,N)
- 003S(U,C,N)
- 001S(U,C,N)
- 901S(N)
- 009S(U,C,N)
- 914S
- 001S
- 001V
- 905S(C)
- 919S(U)
- 918S(C)
- 912S(N)

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

17. PARTS LIST

• (U) for U.S.A.
• (C) for Canada
• (N) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION	REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N				U	C	N		
A	1	1	1	2207063400	Front Panel Assembly	006S	1	1	1	9013025010	Polyethylene Bag
A1			1	2207063410	Front Panel Assembly	007G	1	1	1	2211274302	Reflector
001B	1	1	1	2205063012	Escutcheon	007S	1	1	1	9013025010	Polyethylene Bag
003B	1	1	1	2205053012	Cover	008F	1	1	1	2205126033	Stay
004B	5	5	5	51100305A9	B.H.M. Screw, B3 x 5	008I	1	1	1	2219112010	Shaft
007B	1	1	1	2211158110	Window	009F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6
008B	9	9	9	2978259010	Bushing	009S	1	1	1	2864804010	Sleeve
901B	1	1	1	2207063012	Escutcheon	010G	1	1	1	2205051013	Guide
901B			1	2207063110	Escutcheon	011B	3	3	3	2221154230	Knob
B	1	1	1	2205159400	Drum Assembly	011G	2	2	2	51042608A0	F.H.M. Screw, F2.6 x 8
091F	1	1	1	2204159010	Drum	012S	1	1	1	2918107130	Sheet
092F	1	1	1	2205115020	Spring	013B	3	3	3	2205154010	Knob
093F	2	2	2	51064019A9	P.H.M. Screw	013I	1	1	1	59031405G9	Washer
C	1	1	1	2219273410	Flywheel Assembly	014B	3	3	3	2205154020	Knob
001I	1	1	1	2219273010	Flywheel	014F	4	4	4	51490514A9	L. Washer Screw
007I	2	2	2	2219063030	Escutcheon	014G	4	4	4	51100306A9	B.H.M. Screw, B3 x 6
010I	1	1	1	2215353010	Ring	016B	6	6	6	2205154030	Knob
012I	2	2	2	51820206B0	P.H.M. Screw, P2 x 6	017B	2	2	2	2963154022	Knob
PE08	2	2	2	2933118020	Spacer	017F	4	4	4	51280308U0	B.H. Tapped Screw, B3 x 8
PE11	1	1	1	75060751P0	Jumper	017G	1	1	1	2211274203	Reflector
PE12	1	1	1	75061001P0	Jumper	017I	4	4	4	51470306A9	L. Washer Screw
PE13	6	6	6	75061251P0	Jumper	018F	6	6	6	51280308U0	B.H. Tapped Screw, B3 x 8
P208	12	12	12	2933118020	Spacer	018I	1	1	1	2205160123	Bracket
P211	12	12	12	75061251P0	Jumper	019G	2	2	2	2213053022	Cover
P408	6	6	4	2933118020	Spacer	020G	2	2	2	2991107020	Sheet
P411	1	1	1	75061001P0	Jumper	020I	3	3	3	51280306B0	B.H. Tapped Screw, B3 x 6
P412	2	2	2	75061251P0	Jumper	021B	1	1	1	2213055010	Collar
P413	1	1	1	75061501P0	Jumper	022B	4	4	4	52017069J0	H. Head Bolt
P707	32	32	32	3444118050	Spacer	031B	6	6	6	51280308U0	B.H. Tapped Screw, B3 x 8
P708	32	32	32	2933118020	Spacer	031F	1	1	1	2207267012	Heatsink
P711	10	10	10	75061251P0	Jumper	031G	1	1	1	2205269013	Protector
P712	3	3	3	75060751P0	Jumper	032B	2	2	2	51280308U0	B.H. Tapped Screw, B3 x 8
R308	1	1	1	75061251P0	Jumper	032F	1	1	1	2207104012	Retainer
001G	1	1	1	2211160043	Bracket	032G	3	3	3	51280306B0	B.H. Tapped Screw, B3 x 6
001H	1	1	1	2991103500	Pointer	033B	4	4	4	51280308U0	B.H. Tapped Screw, B3 x 8
001S	1	1	1	2207801010	Packing Case	033F	4	4	4	51280308B0	B.H. Tapped Screw, B3 x 8
001V	1	1	1	ZA02000070	Ext. Antenna, FM	034B	2	2	2	51280308U0	B.H. Tapped Screw, B3 x 8
002F	1	1	1	2205126010	Stay	034F	1	1	1	2207104022	Retainer
002I	1	1	1	2213104500	Retainer	035B	10	10	10	51280308U0	B.H. Tapped Screw, B3 x 8
003B	1	1	1	2205053012	Cover	036B	2	2	2	51760306B0	OS Tapped Screw, O3 x 6
003F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6	036F	2	2	2	51280308B0	B.H. Tapped Screw, B3 x 8
003G	4	4	4	51280406B0	B.H. Tapped Screw, B4 x 6	037F	1	1	1	2207267020	Heatsink
003S	2	2	2	2204809012	Cushion	038F	1	1	1	51280310B0	B.H. Tapped Screw, B3 x 10
005F	1	1	1	2205126023	Stay	039G	1	1	1	2205262512	Pulley
005S	1	1	1	9014838380	Polyethylene Bag	041B	1	1	1	2205257010	Lid
006F	5	5	5	51280306B0	B.H. Tapped Screw, B3 x 6	042B	4	4	4	51480406S9	F. Washer Screw
006G	1	1	1	2211274102	Reflector	043B	4	4	4	51280306U0	B.H. Tapped Screw, B3 x 6

• (U) for U.S.A.
 • (C) for Canada
 • (N) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION	REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	N				U	C	N		
052F	1	1	1	51280316U0	B.H. Tapped Screw, B3 x 16	902S	1			2886851100	Instructions
053F	2	2	2	5128030880	B.H. Tapped Screw, B3 x 8	903B	1	1		2207160214	Bracket
053G	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6	903B			1	2207160222	Bracket
054F	1	1	1	2207267040	Heatsink	903G	1	1		2205160020	Bracket
055F	1	1	1	2207267030	Heatsink	903G			1	2205160150	Bracket
061F	2	2	2	2891271013	Holder	903S			1	2207851310	Instructions
062F	2	2	2	2205002012	Arm	904G			2	2970120030	Insulator
063F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6	905S			2	9510901020	Label
063G	2	2	2	51100306A9	B.H.M. Screw, B3 x 6	906B	1	1		1455259030	Bushing
064G	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6	906B			1	1455259040	Bushing
065F	2	2	2	2207160010	Bracket	906S			1	2818813010	Envelope
066F	2	2	2	51300306B0	P.H. Tapped Screw, P3 x 6	907S			1	2818851120	Instructions
067G	1	1	1	2205160010	Bracket	907S			1	2918813012	Envelope
068F	2	2	2	51300306B0	P.H. Tapped Screw, P3 x 6	908S			1	2818851120	Instructions
070G	3	3	3	51280306B0	B.H. Tapped Screw, B3 x 6	908S			1	9630000180	Guarantee Card
071F	1	1	1	2963125010	Joint	909B	1			2207265010	Indicator
074F	4	4	4	51280306B0	B.H. Tapped Screw, B3 x 6	909B			1	2207265020	Indicator
074G	1	1	1	2213106012	Sustainer	909B			1	2207265030	Indicator
075F	1	1	1	2207123010	Contactor	910S	1			2577813010	Envelope
075G	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6	910S			1	2818851140	Instructions
076F	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6	910S			1	9630000180	Guarantee Card
077F	1	1	1	62030049W0	Lug	911B	1			2506265060	Indicator
078G	2	2	2	2205115010	Spring	911B			1	2911861170	Label
080F	2	2	2	62030049W0	Lug	911B			2	5110030859	B.H.M. Screw, B3 x 8
080G	2	2	2	2205160032	Bracket	912B	1			2578861010	Label
081F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6	912B			1	2911861112	Label
091G	1	1	1	2205112500	Shaft	912S	1			2577851020	Instructions
096F	2	2	2	72071605A0	String	912S			3	9523015110	Serial No. Card
097G	2	2	2	51280308B0	B.H. Tapped Screw, B3 x 8	912S			1	9650000050	S. Station Card
100F	1	1	1	2205262520	Pulley	913B			1	2506265060	Indicator
104F	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6	913B			1	2911861142	Label
106G	1	1	1	2213107010	Sheet	913B	1			2932861010	Label
108F	1	1	1	2205262530	Pulley	914B	1			2578861010	Label
112F	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6	914B			1	9510911010	Label
121F	5	5	5	2886005020	Clamper	914B			1	9510911020	Label
122F	2	2	2	2886005050	Clamper	914S	1			2577854012	Guarantee Card
123F	2	2	2	2205120010	Insulator	914S			1	2731821010	Silicagel
124F	2	2	2	51280306B0	B.H. Tapped Screw, B3 x 6	914S			1	2818854042	Guarantee Card
125F	1	1	1	2207105500	Chassis	915B	1			2932861010	Label
130F	1	1	1	62030049W0	Lug	915B			1	9511101020	Label
131F	1	1	1	51280306B0	B.H. Tapped Screw, B3 x 6	915S	1			2818854023	Guarantee Card
133F	1	1	1	62040029W0	Lug	916B	2		2	2205861010	Label
134F	1	1	1	62030049W0	Lug	916B			1	2911861192	Label
135F	1	1	1	2991109010	Shield	916S	1			2818851040	Instructions
136F	1	1	1	2991053110	Cover	916S			1	2818851140	Instructions
140F	1	1	1	51280410U0	B.H. Tapped Screw, B4 x 10	917B			1	2911861270	Label
801B	1			2218271050	Holder	918B			3	2205861110	Label
802B	1	1		2218258010	Hook	918S			3	9523015120	Serial No. Card
803B	1	1		2218257030	Lid	919B			1	2970005010	Clamper
804B	2	2		51280308U0	B.H. Tapped Screw, B3 x 8	919S			3	9522815010	Serial No. Card
805B	2	2		51280308U0	B.H. Tapped Screw, B3 x 8	920B	1	1		2963154022	Knob
901G		1		2205302010	Dial	920B			1	4113120010	Insulator
901G	1	1		2211274302	Reflector	921B			2	51100314S9	B.H.M. Screw, B3 x 14
901S	1			2207851010	Instructions	925B			1	2218154020	Knob
901S	1			2207851310	Instructions	926B			1	9512601030	Label
901S		1		9560000040	Hang Tag	927B			1	9512601060	Label
902G	1	1		2207302010	Dial						

• (U) for U.S.A.
 • (C) for Canada
 • (N) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION			REF. DESIG.	Q'TY			PART NO.	DESCRIPTION			
	U	C	N						U	C	N					
CE01	1	1	1	DF17224050	Film Cap.,	0.22μF	±20%	50V	RE03	1	1	1	RM05030690	Variable Resistor, 50kΩ (BH) Balance		
CE02	1	1	1	DF17224050	Film Cap.,	0.22μF	±20%	50V	RE05	1	1	1	RM05030700	Variable Resistor, 50kΩ (B) Volume		
CE03	1	1	1	DK16681010	Ceramic Cap.,	680pF	±10%	50V	RE07	1	1	1	RT05133140	Resistor, 13kΩ ±5% 1/4W		
CE04	1	1	1	DK16681010	Ceramic Cap.,	680pF	±10%	50V	RE08	1	1	1	RT05133140	Resistor, 13kΩ ±5% 1/4W		
CE05	1	1	1	DF16104010	Film Cap.,	0.1μF	±10%	50V	RE09	1	1	1	RT05392140	Resistor, 3.9kΩ ±5% 1/4W		
CE06	1	1	1	DF16104010	Film Cap.,	0.1μF	±10%	50V	RE10	1	1	1	RT05392140	Resistor, 3.9kΩ ±5% 1/4W		
CE07	1	1	1	EA10603590	Electrolytic Cap.,	10μF	±10%	35V	RE11	1	1	1	RT05474140	Resistor, 470kΩ ±5% 1/4W		
CE08	1	1	1	EA10603590	Electrolytic Cap.,	10μF	±10%	35V	RE12	1	1	1	RT05474140	Resistor, 470kΩ ±5% 1/4W		
CE09	1	1	1	EE47502540	Electrolytic Cap.,	4.7μF	±20%	25V	RE13	1	1	1	RT05391140	Resistor, 390Ω ±5% 1/4W		
CE10	1	1	1	EE47502540	Electrolytic Cap.,	4.7μF	±20%	25V	RE14	1	1	1	RT05391140	Resistor, 390Ω ±5% 1/4W		
CE11	1	1	1	DD16101010	Ceramic Cap.,	100pF	±10%	50V	RE15	1	1	1	RT05105140	Resistor, 1MΩ ±5% 1/4W		
CE12	1	1	1	DD16101010	Ceramic Cap.,	100pF	±10%	50V	RE16	1	1	1	RT05105140	Resistor, 1MΩ ±5% 1/4W		
CE13	1	1	1	DF16222050	Film Cap.,	0.0022μF	±10%	50V	RE17	1	1	1	RT05104140	Resistor, 100kΩ ±5% 1/4W		
CE14	1	1	1	DF16222050	Film Cap.,	0.0022μF	±10%	50V	RE18	1	1	1	RT05103140	Resistor, 10kΩ ±5% 1/4W		
CE15	1	1	1	DF16472050	Film Cap.,	0.0047μF	±10%	50V	RE19	1	1	1	RT05102140	Resistor, 1kΩ ±5% 1/4W		
CE16	1	1	1	DF16472050	Film Cap.,	0.0047μF	±10%	50V	RE20	1	1	1	RT05102140	Resistor, 1kΩ ±5% 1/4W		
CE17	1	1	1	DF16223050	Film Cap.,	0.022μF	±10%	50V	RE21	1	1	1	RT05273140	Resistor, 27kΩ ±5% 1/4W		
CE18	1	1	1	DF16223050	Film Cap.,	0.022μF	±10%	50V	RE22	1	1	1	RT05273140	Resistor, 27kΩ ±5% 1/4W		
CE19	1	1	1	DF16223050	Film Cap.,	0.022μF	±10%	50V	RE23	1	1	1	RT05752140	Resistor, 7.5kΩ ±5% 1/4W		
CE20	1	1	1	DF16223050	Film Cap.,	0.022μF	±10%	50V	RE23			1	RT05822140	Resistor, 8.2kΩ ±5% 1/4W		
CE21	1	1	1	DF16822050	Film Cap.,	0.0082μF	±10%	50V	RE24	1	1	1	RT05752140	Resistor, 7.5kΩ ±5% 1/4W		
CE22	1	1	1	DF16822050	Film Cap.,	0.0082μF	±10%	50V	RE24			1	RT05822140	Resistor, 8.2kΩ ±5% 1/4W		
CE23	1	1	1	EE10505010	Electrolytic Cap.,	1μF	±20%	50V	RE25	1	1	1	RT05102140	Resistor, 1kΩ ±5% 1/4W		
CE24	1	1	1	EE10505010	Electrolytic Cap.,	1μF	±20%	50V	RE26	1	1	1	RT05102140	Resistor, 1kΩ ±5% 1/4W		
CE25	1	1	1	EE33505010	Electrolytic Cap.,	3.3μF	±20%	50V	RE27	1	1	1	RT05474140	Resistor, 470kΩ ±5% 1/4W		
CE26	1	1	1	EE33505010	Electrolytic Cap.,	3.3μF	±20%	50V	RE28	1	1	1	RT05474140	Resistor, 470kΩ ±5% 1/4W		
CE27	1	1	1	EQ10505010	Electrolytic Cap.,	1μF	±30%	50V	RE29	1	1	1	RT05123140	Resistor, 12kΩ ±5% 1/4W		
CE27		1		EQ10603510	Electrolytic Cap.,	10μF	±30%	35V	RE30	1	1	1	RT05123140	Resistor, 12kΩ ±5% 1/4W		
CE28	1	1	1	EQ10505010	Electrolytic Cap.,	1μF	±30%	50V	RE31	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% 1/4W		
CE28		1		EQ10603510	Electrolytic Cap.,	10μF	±30%	35V	RE32	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% 1/4W		
CE29	1	1	1	DF16682050	Film Cap.,	0.0068μF	±10%	50V	RE33	1	1	1	RT05334140	Resistor, 330kΩ ±5% 1/4W		
CE30	1	1	1	DF16682050	Film Cap.,	0.0068μF	±10%	50V	RE34	1	1	1	RT05334140	Resistor, 330kΩ ±5% 1/4W		
CE31		1		EQ22405010	Electrolytic Cap.,	0.22μF	±30%	50V	RE35	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% 1/4W		
CE32		1		EQ22405010	Electrolytic Cap.,	0.22μF	±30%	50V	RE36	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% 1/4W		
CE33	1	1	1	DF15222050	Film Cap.,	0.0022μF	±5%	50V	RE37	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% 1/4W		
CE34	1	1	1	DF15222050	Film Cap.,	0.0022μF	±5%	50V	RE38	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% 1/4W		
CE35	1	1	1	EA22703590	Electrolytic Cap.,	220μF	±10%	35V	RE39	1	1	1	RT05273140	Resistor, 27kΩ ±5% 1/4W		
JE01		27	27	27	YP10001130	Plug			RE40	1	1	1	RT05273140	Resistor, 27kΩ ±5% 1/4W		
JE27									RE41	1	1	1	RT05153140	Resistor, 15kΩ ±5% 1/4W		
JE27									RE42	1	1	1	RT05153140	Resistor, 15kΩ ±5% 1/4W		
JE28					YP10001130	Plug,	Pin		RE43	1	1	1	RT05123140	Resistor, 12kΩ ±5% 1/4W		
JE29	1	1	1	YP10001130	Plug,	Pin			RE44	1	1	1	RT05123140	Resistor, 12kΩ ±5% 1/4W		
PE01	1	1	1	YK22050220	PE01 TONE BOARD				RE45	1	1	1	RT05273140	Resistor, 27kΩ ±5% 1/4W		
	1	1	1	ZZ22050220	P.W. Board				RE46	1	1	1	RT05273140	Resistor, 27kΩ ±5% 1/4W		
		1		ZZ22058220	P.W. Board Assembly				RE47	1	1	1	RT05334140	Resistor, 330kΩ ±5% 1/4W		
QE01	1	1	1	HT316812A0	Transistor,	2SC1681	(GR, BL)		RE48	1	1	1	RT05334140	Resistor, 330kΩ ±5% 1/4W		
QE02	1	1	1	HT316812A0	Transistor,	2SC1681	(GR, BL)		RE49	1	1	1	RD01040150	Variable Resistor, 100kΩ (B) Treble		
QE03	1	1	1	HT108412A0	Transistor,	2SA 841	(GR, BL)		RE50	1	1	1	RD01040150	Variable Resistor, 100kΩ (B) Mid		
QE04	1	1	1	HT108412A0	Transistor,	2SA 841	(GR, BL)		RE51	1	1	1	RD01040150	Variable Resistor, 100kΩ (B) Bass		
QE05	1	1	1	HT316812A0	Transistor,	2SC1681	(GR, BL)		RE52	1	1	1	RT05683140	Resistor, 68kΩ ±5% 1/4W		
QE06	1	1	1	HT316812A0	Transistor,	2SC1681	(GR, BL)		RE53	1	1	1	RT05683140	Resistor, 68kΩ ±5% 1/4W		
QE07	1	1	1	HT108412A0	Transistor,	2SA 841	(GR, BL)		RE54	1	1	1	RT05683140	Resistor, 68kΩ ±5% 1/4W		
QE08	1	1	1	HT108412A0	Transistor,	2SA 841	(GR, BL)		RE55	1	1	1	RT05683140	Resistor, 68kΩ ±5% 1/4W		
RE01	1	1	1	RT05102140	Resistor,	1kΩ	±5%	1/4W	RE56	1	1	1	RT05683140	Resistor, 68kΩ ±5% 1/4W		
RE02	1	1	1	RT05102140	Resistor,	1kΩ	±5%	1/4W	RE57	1	1	1	RT05225140	Resistor, 2.2MΩ ±5% 1/4W		
									RE58	1	1	1	RT05225140	Resistor, 2.2MΩ ±5% 1/4W		
									RE59	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W		
									RE60	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W		
									RE61	1	1	1	RT05221140	Resistor, 220Ω ±5% 1/4W		
									RE62	1	1	1	RT05221140	Resistor, 220Ω ±5% 1/4W		

- (U) for U.S.A.
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REF. DESIG.	Q'TY			PART NO.	DESCRIPTION					REF. DESIG.	Q'TY			PART NO.	DESCRIPTION					
	U	C	N								U	C	N							
RE63	1	1	1	RT05103140	Resistor,	10kΩ	±5%	1/4W		J008	1	1	1	YT03040160	Terminal, Spkr Terminal (System 1)					
RE64	1	1	1	RT05103140	Resistor,	10kΩ	±5%	1/4W		J009	1	1	1	YT03040160	Terminal, Spkr Terminal (System 2)					
RE65	1	1	1	RT05474140	Resistor,	470kΩ	±5%	1/4W		J010	1	1	1	YJ01001080	Jack					
RE66	1	1	1	RT05474140	Resistor,	470kΩ	±5%	1/4W		J011	1	1	1	YJ08000250	Jack,	Lamp Socket				
RE67	1	1	1	RT05472140	Resistor,	4.7kΩ	±5%	1/4W		J012	1	1	1	YJ08000250	Jack,	Lamp Socket				
RE68	1	1	1	RT05472140	Resistor,	4.7kΩ	±5%	1/4W		J013	1	1	1	YJ04000560	Jack,	AC Outlet				
RE69	1	1	1	RT05225140	Resistor,	2.2MΩ	±5%	1/4W		J014	1	1	1	YJ04000560	Jack,	AC Outlet				
RE70	1	1	1	RT05225140	Resistor,	2.2MΩ	±5%	1/4W		J015	1	1	1	BY03110010	Plug,	Voltage Selector				
RE71	1	1	1	RT05105140	Resistor,	1MΩ	±5%	1/4W		J015	1	1	1	YJ08000120	Jack,	Fuse Holder				
RE72	1	1	1	RT05105140	Resistor,	1MΩ	±5%	1/4W		J016	1	1	1	YL09030010	Terminal					
RE73	1	1	1	RT05562140	Resistor,	5.6kΩ	±5%	1/4W		J017	1	1	1	YJ08000220	Jack,	Fuse Holder				
RE74	1	1	1	RT05562140	Resistor,	5.6kΩ	±5%	1/4W		L001	1	1	1	LF11200520	Ant. Coil,	AM Rod Ant.				
RE75	1	1	1	RT05821140	Resistor,	820Ω	±5%	1/4W		L002	1	1	1	LB30075260	Balun Coil					
SE01	1	1	1	SP06050110	Pushswitch,	Dolby, Tape, etc.					L003	1	1	1	TS19609010	Power Transformer				
JK01	?	8	8	YP10001130	Plug					L003	1	1	1	TS19609020	Power Transformer					
JK08										M001	1	1	1	IM11055080	DC Meter,	Signal				
JK09	1	1	1	YJ07000120	Jack					M002	1	1	1	IM11055050	DC Meter,	Tuning				
PK01 DOLBY SOCKET BOARD																				
PK01	1	1	1	YA22180310	P.W. Board					S001	1	1	1	SP04010250	Pushswitch,	Power				
	1	1	1	ZZ22180310	P.W. Board Assembly					S002	1	1	1	SP02010260	Pushswitch,	Muting				
SK01	1	1	1	SC01020240	Switch,	Micro Switch					V001	1	1	1	IN10080340	Lamp,	Stereo			
SK02	1	1	1	SC01020240	Switch,	Micro Switch					V002	1	1	1	IN10080430	Lamp,	8V 0.3A			
JZ01	?	7	7	YP10001130	Plug					V004	1	1	1	IN10080430	Lamp,	8V 0.3A				
JZ07										V005	1	1	1	IN10080340	Lamp,	Dolby				
JZ08										W001	1	1	1	YC01900030	AC Power Cord					
JZ17	?	10	10	YJ08000170	Jack,	10P PC Connector					W001	1	1	1	YC02400220	AC Power Cord				
PZ01 DIAL LAMP BOARD																				
PZ01	1	1	1	YF22130050	P.W. Board					C103	1	1	1	DK18203030	Ceramic Cap.,	0.02μF				
	1	1	1	ZZ22130050	P.W. Board Assembly					C104	1	1	1	DD11020010	Ceramic Cap.,	2pF				
VZ01	1	1	1	IN10080070	Lamp,	8V 200mA				C105	1	1	1	DK18203030	Ceramic Cap.,	0.02μF				
VZ02	1	1	1	IN10080070	Lamp,	8V 200mA				C106	1	1	1	DD16150040	Ceramic Cap.,	15pF ±10%				
VZ03	1	1	1	IN10080070	Lamp,	8V 200mA				C107	1	1	1	DD11020010	Ceramic Cap.,	2pF				
VZ04	1	1	1	IN10080070	Lamp,	8V 200mA				C108	1	1	1	DD12050010	Ceramic Cap.,	5pF				
VZ05	1	1	1	IN10080070	Lamp,	8V 200mA				C109	1	1	1	DD16101010	Ceramic Cap.,	100pF ±10%				
C001	1	1	1	DK18103010	Ceramic Cap.,	0.01μF	±10%	50V		C110	1	1	1	DK18203030	Ceramic Cap.,	0.02μF				
C002	1	1	1	DK18103010	Ceramic Cap.,	0.01μF	±10%	50V		C111	1	1	1	DD16101010	Ceramic Cap.,	100pF ±10%				
C003	1	1	1	EI10905010	Electrolytic Cap.,	10000μF	±5%	50V		C112	1	1	1	DK18203030	Ceramic Cap.,	0.02μF				
C004	1	1	1	DK18103510	Ceramic Cap.,	0.01μF		500V		C113	1	1	1	DD15150020	Ceramic Cap.,	15pF ±5%				
C005	1	1	1	BF10400050	Cap. Comp.,	Printed Comp.					C114	1	1	1	DD10050030	Ceramic Cap.,	5pF			
C005	1	1	1	DC07223510	Oil-Paper Cap.,	0.022μF	±10%	450V		C115	1	1	1	DD12050010	Ceramic Cap.,	5pF				
C006	1	1	1	DF17223800	Film Cap.,	0.02μF		1000V		C116	1	1	1	DD16330020	Ceramic Cap.,	33pF ±10%				
F001	1	1	1	FS10250800	Fuse,	2.5A SEMKO Type 20mm				C117	1	1	1	DD12100060	Ceramic Cap.,	10pF				
F001	1	1	1	FS10400050	Fuse,	4A MGC 30mm				C118	1	1	1	DK18203030	Ceramic Cap.,	0.02μF				
F002	1	1	1	FS20500910	Fuse,	5A MGP 30mm				C119	1	1	1	DD11020010	Ceramic Cap.,	2pF				
G001	1	1	1	BF10400030	Cap. Comp.,	Printed Comp.					C120	1	1	1	CA32400080	Variable Cap.				
J001	1	1	1	BY04050010	Terminal,	Ant. Terminal					C121	1	1	1	CT14200010	Trimming Cap.				
J002	1	1	1	YT01010050	Terminal,	Ground Terminal					C151	1	1	1	DK17103010	Ceramic Cap.,	0.01μF ±20%			
J003	1	1	1	YT02040140	Terminal,	Phono, Aux					C152	1	1	1	DK17103010	Ceramic Cap.,	0.01μF ±20%			
J004	1	1	1	YT02040140	Terminal,	Tape 1 In, Out					C153	1	1	1	DK17102010	Ceramic Cap.,	0.001μF ±20%			
J005	1	1	1	YT02040140	Terminal,	Tape 2 In, Out					C154	1	1	1	EA10701690	Electrolytic Cap.,	100μF 16V			
J006	1	1	1	YT02040170	Terminal,	Pre Out, Main In					C155	1	1	1	DK18403020	Ceramic Cap.,	0.04μF			
J007	1	1	1	YT02010130	Terminal,	Quad. Out					C156	1	1	1	DF65391010	Film Cap.,	390pF			
										C157	1	1	1	DD16150010	Ceramic Cap.,	15pF ±10%				
										C158	1	1	1	DK18103010	Ceramic Cap.,	0.01μF				

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION	REF. DESIG.	Q'TY			PART NO.	DESCRIPTION						
	U	C	N				U	C	N								
C159	1	1	1	DK17103010	Ceramic Cap., 0.01 μ F \pm 20%	R155	1	1	1	RT05151140	Resistor, 150 Ω \pm 5% $\frac{1}{4}$ W						
C160	1	1	1	DD16820010	Ceramic Cap., 82pF \pm 10%	R156	1	1	1	RA05020200	Trimming Resistor, 5k Ω						
C161	1	1	1	DK17103010	Ceramic Cap., 0.01 μ F \pm 20%	R157	1	1	1	RT05391140	Resistor, 390 Ω \pm 5% $\frac{1}{4}$ W						
C162	1	1	1	DK18403020	Ceramic Cap., 0.04 μ F	R158	1	1	1	RT05124140	Resistor, 120k Ω \pm 5% $\frac{1}{4}$ W						
C163	1	1	1	EA10505090	Electrolytic Cap., 1 μ F 50V	R159	1	1	1	RT05104140	Resistor, 100k Ω \pm 5% $\frac{1}{4}$ W						
C164	1	1	1	EA22601690	Electrolytic Cap., 22 μ F 16V	R160	1	1	1	RT05103140	Resistor, 10k Ω \pm 5% $\frac{1}{4}$ W						
C165	1	1	1	EA47503590	Electrolytic Cap., 4.7 μ F 35V	R161	1	1	1	RT05103140	Resistor, 10k Ω \pm 5% $\frac{1}{4}$ W						
C166	1	1	1	DK17102010	Ceramic Cap., 0.001 μ F \pm 20%	R162	1	1	1	RT05102140	Resistor, 1k Ω \pm 5% $\frac{1}{4}$ W						
C167	1	1	1	DK18103010	Ceramic Cap., 0.01 μ F	R163	1	1	1	RT05301140	Resistor, 300 Ω \pm 5% $\frac{1}{4}$ W						
C168	1	1	1	DK16682010	Ceramic Cap., 0.0068 μ F \pm 10%	R164	1	1	1	RT05473140	Resistor, 47k Ω \pm 5% $\frac{1}{4}$ W						
C169	1	1	1	DK18403020	Ceramic Cap., 0.04 μ F	R165	1	1	1	RT05104140	Resistor, 100k Ω \pm 5% $\frac{1}{4}$ W						
C170	1	1	1	EA10701690	Electrolytic Cap., 100 μ F 16V	R166	1	1	1	RT05152140	Resistor, 1.5k Ω \pm 5% $\frac{1}{4}$ W						
C171	1	1	1	DF16104010	Film Cap., 0.1 μ F \pm 10%	R167	1	1	1	RT05242140	Resistor, 2.4k Ω \pm 5% $\frac{1}{4}$ W						
C172	1	1	1	EE47502510	Electrolytic Cap., 4.7 μ F 25V	R169	1	1	1	RT05473140	Resistor, 47k Ω \pm 5% $\frac{1}{4}$ W						
F151	1	1	1	FF10045160	Ceramic Filter, AM CF SFD455D	R170	1	1	1	RT05101140	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W						
J101	1	1	1	YP10001510	Plug	C201	1	1	1	DD15300010	Ceramic Cap., 30pF \pm 5%						
J102	1	1	1	YP10001510	Plug	C202	1	1	1	DK17103010	Ceramic Cap., 0.01 μ F \pm 20%						
J103	1	1	1	YP10001510	Plug	C203	1	1	1	DK17103010	Ceramic Cap., 0.01 μ F \pm 20%						
J105	1	1	1	YP10001510	Plug	C204	1	1	1	DK17103010	Ceramic Cap., 0.01 μ F \pm 20%						
J107	1	1	1	YP10001510	Plug	C205	1	1	1	DK18403020	Ceramic Cap., 0.04 μ F						
J109	1	1	1	YP10001510	Plug	C206	1	1	1	DK18403020	Ceramic Cap., 0.04 μ F						
J110	1	1	1	YP10001510	Plug	C207	1	1	1	DK18403020	Ceramic Cap., 0.04 μ F						
J111	1	1	1	YP10001510	Plug	C208	1	1	1	EA47503590	Electrolytic Cap., 4.7 μ F 35V						
L105	1	1	1	LC12220010	Choke Coil	C209	1	1	1	DD15400040	Ceramic Cap., 40pF \pm 5%						
L106	1	1	1	LI10239010	I.F.T.	C210	1	1	1	EA22601690	Electrolytic Cap., 22 μ F 16V						
L151	1	1	1	LC13320020	Choke Coil, 3.3 μ H	C211	1	1	1	EA47405010	Electrolytic Cap., 0.47 μ F 50V						
L152	1	1	1	LC13320020	Choke Coil, 3.3 μ H	C212	1	1	1	DK18403010	Ceramic Cap., 0.04 μ F						
L153	1	1	1	LC13320020	Choke Coil, 3.3 μ H	C213	1	1	1	DK18403010	Ceramic Cap., 0.04 μ F						
L154	1	1	1	LO10010480	Osc. Coil, AM	C214	1	1	1	DK18403010	Ceramic Cap., 0.04 μ F						
L155	1	1	1	LI10015010	I.F.T., AM	C215	1	1	1	DK18403010	Ceramic Cap., 0.04 μ F						
L156	1	1	1	LI10015060	I.F.T., AM	C216	1	1	1	DK18403010	Ceramic Cap., 0.04 μ F						
P100 FM FRONT END BOARD																	
P100	1	1	1	YD29910010	P.W. Board	C217	1	1	1	EA10505090	Electrolytic Cap., 1 μ F 50V						
A201	1	1	1	AV01202060	Front End Assembly	C218	1	1	1	EA10505090	Electrolytic Cap., 1 μ F 50V						
Q101	1	1	1	HF400451B0	F.E.T., 3SK45 B	F201	1	1	1	FF11070050	Ceramic Filter, FM CF SFE10.7MD1						
Q102	1	1	1	HT305352B0	Transistor, 2SC535 (B, C)	F202	1	1	1	FF11070050	Ceramic Filter, FM CF SFE10.7MD1						
Q103	1	1	1	HT313422B0	Transistor, 2SC1342 (B, C)	F203	1	1	1	FF11070050	Ceramic Filter, FM CF SFE10.7MD1						
Q151	1	1	1	HC10019010	IC, HA1197	J201	1	33	33	YP10001130	Plug						
Q152	1	1	1	HT313272A0	Transistor, 2SC1327 (S, T)	J229	1	1	1	YP10001130	Plug						
Q153	1	1	1	HV00006120	Varistor, MV-203	J231	1	1	1	YP10001130	Plug						
R101	1	1	1	GD05105140	Resistor, 1M Ω \pm 5% $\frac{1}{4}$ W	J232	1	1	1	YP10001130	Plug						
R102	1	1	1	GD05101140	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W	J233	1	1	1	YP10001130	Plug, AM Test Point						
R103	1	1	1	GD05101140	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W	L202	1	1	1	LI14019010	I.F.T., FM						
R104	1	1	1	GD05101140	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W	L203	1	1	1	LC11830010	Choke Coil, 18 μ H						
R105	1	1	1	GD05223140	Resistor, 22k Ω \pm 5% $\frac{1}{4}$ W	P200 FM MPX BOARD											
R106	1	1	1	GD05472140	Resistor, 4.7k Ω \pm 5% $\frac{1}{4}$ W	P200	1	1	1	YD22042012	P.W. Board						
R107	1	1	1	GD05102140	Resistor, 1k Ω \pm 5% $\frac{1}{4}$ W		1	1	1	ZZ22092010	P.W. Board Assembly						
R108	1	1	1	GD05103140	Resistor, 10k Ω \pm 5% $\frac{1}{4}$ W		1	1	1	ZZ22098010	P.W. Board Assembly						
R109	1	1	1	GD05332140	Resistor, 3.3k Ω \pm 5% $\frac{1}{4}$ W	Q201	1	1	1	HT310471C0	Transistor, 2SC1047 C						
R110	1	1	1	GD05103140	Resistor, 10k Ω \pm 5% $\frac{1}{4}$ W	Q202	1	1	1	HC10021010	IC, HA1137W						
R111	1	1	1	GD05101140	Resistor, 100 Ω \pm 5% $\frac{1}{4}$ W	Q203	1	1	1	HD20001210	Diode, 1S2473						
R151	1	1	1	RT05201140	Resistor, 200 Ω \pm 5% $\frac{1}{4}$ W	Q204	1	1	1	HD20001210	Diode, 1S2473						
R152	1	1	1	RT05152140	Resistor, 1.5k Ω \pm 5% $\frac{1}{4}$ W	Q205	1	1	1	HD20001210	Diode, 1S2473						
R153	1	1	1	RT05202140	Resistor, 2k Ω \pm 5% $\frac{1}{4}$ W	Q206	1	1	1	HT308281D0	Transistor, 2SC828 S						
R154	1	1	1	RT05152140	Resistor, 1.5k Ω \pm 5% $\frac{1}{4}$ W	Q207	1	1	1	HD20001210	Diode, 1S2473						
						R201	1	1	1	RT05151140	Resistor, 150 Ω \pm 5% $\frac{1}{4}$ W						

• (U) for U.S.A.
 • (C) for Canada
 • (N) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION		
	U	C	N				
R202	1	1	1	RT05331140	Resistor, 330Ω ±5% 1/4W		
R203	1	1	1	RT05153140	Resistor, 15kΩ ±5% 1/4W		
R204	1	1	1	RT05202140	Resistor, 2kΩ ±5% 1/4W		
R205	1	1	1	RT05331140	Resistor, 330Ω ±5% 1/4W		
R206	1	1	1	RT05102140	Resistor, 1kΩ ±5% 1/4W		
R207	1	1	1	RT05101140	Resistor, 100Ω ±5% 1/4W		
R208	1	1	1	RT05334140	Resistor, 330kΩ ±5% 1/4W		
R209	1	1	1	RA05030120	Trimming Resistor, 50kΩ (B)		
R210	1	1	1	RT05103140	Resistor, 10kΩ ±5% 1/4W		
R211	1	1	1	RT05104140	Resistor, 100kΩ ±5% 1/4W		
R212	1	1	1	RA01030250	Trimming Resistor, 10kΩ (B)		
R213	1	1	1	RT05123140	Resistor, 12kΩ ±5% 1/4W		
R214	1	1	1	RT05331140	Resistor, 330Ω ±5% 1/4W		
R215	1	1	1	RA05030120	Trimming Resistor, 50kΩ (B)		
R216	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% 1/4W		
R217	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% 1/4W		
R218	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% 1/4W		
R219	1	1	1	RT05123140	Resistor, 12kΩ ±5% 1/4W		
R220	1	1	1	RT05391140	Resistor, 390Ω ±5% 1/4W		
R221	1	1	1	RT05223140	Resistor, 22kΩ ±5% 1/4W		
R222	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W		
R223	1	1	1	RT05470140	Resistor, 47Ω ±5% 1/4W		
R224	1	1	1	RT05102140	Resistor, 1kΩ ±5% 1/4W		
C301	1	1	1	EA47503590	Electrolytic Cap., 4.7μF 35V		
C302	1	1	1	DF65361500	Film Cap., 360pF ±5%		
C303	1	1	1	EA10701690	Electrolytic Cap., 100μF 16V		
C304	1	1	1	EE33502510	Electrolytic Cap., 3.3μF 25V		
C305	1	1	1	EE10505010	Electrolytic Cap., 1μF 50V		
C306	1	1	1	EA10505090	Electrolytic Cap., 1μF 50V		
C307	1	1	1	EO22405010	Electrolytic Cap., 0.22μF 50V		
C308	1	1	1	DF17473010	Film Cap., 0.047μF ±20%		
C309	1	1	1	DD15500050	Ceramic Cap., 50pF ±5%		
C310	1	1	1	DD15500050	Ceramic Cap., 50pF ±5%		
C311	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V		
C312	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V		
C313	1	1	1	EA22505090	Electrolytic Cap., 2.2μF 50V		
C314	1	1	1	EA22505090	Electrolytic Cap., 2.2μF 50V		
C315	1	1	1	DF15102050	Film Cap., 1000pF ±5%		
C315	1	1	1	DF15222050	Film Cap., 2200pF ±5%		
C316	1	1	1	DF15102050	Film Cap., 1000pF ±5%		
C316	1	1	1	DF15222050	Film Cap., 2200pF ±5%		
C317	1	1	1	EA47405010	Electrolytic Cap., 0.47μF 50V		
C318	1	1	1	EA47405010	Electrolytic Cap., 0.47μF 50V		
C319	1	1	1	EE47502510	Electrolytic Cap., 4.7μF 25V		
C320	1	1	1	EE47502510	Electrolytic Cap., 4.7μF 25V		
C321	1	1	1	EA10701690	Electrolytic Cap., 100μF 16V		
C322	1	1	1	EE10601640	Electrolytic Cap., 10μF 16V		
L301	1	1	1	LS35025010	M.P.X. Coil, LPF.		
Q301	1	1	1	HT308281D0	Transistor, 2SC828 S		
Q302	1	1	1	HC10020010	IC, HA1196		
Q303	1	1	1	HT313441E0	Transistor, 2SC1344 E		
Q304	1	1	1	HT313441E0	Transistor, 2SC1344 E		
R301	1	1	1	RA01030310	Trimming Resistor, 10kΩ (B)		
R302	1	1	1	RT05104140	Resistor, 100kΩ ±5% 1/4W		
R303	1	1	1	RT05223140	Resistor, 22kΩ ±5% 1/4W		
R304	1	1	1	RT05102140	Resistor, 1kΩ ±5% 1/4W		
R305	1	1	1	RT05104140	Resistor, 100kΩ ±5% 1/4W		

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION		
	U	C	N				
R306	1	1	1	RT05824140	Resistor, 820kΩ ±5% 1/4W		
R307	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W		
R309	1	1	1	RT05154140	Resistor, 150kΩ ±5% 1/4W		
R310	1	1	1	RT05223140	Resistor, 22kΩ ±5% 1/4W		
R311	1	1	1	RT05272140	Resistor, 2.7kΩ ±5% 1/4W		
R312	1	1	1	RT05101140	Resistor, 100Ω ±5% 1/4W		
R313	1	1	1	RT05303140	Resistor, 30kΩ ±5% 1/4W		
R314	1	1	1	RT05303140	Resistor, 30kΩ ±5% 1/4W		
R315	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W		
R316	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W		
R317	1	1	1	RA05040080	Trimming Resistor, 500kΩ (B)		
R318	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W		
R319	1	1	1	RT05273140	Resistor, 27kΩ ±5% 1/4W		
R320	1	1	1	RT05273140	Resistor, 27kΩ ±5% 1/4W		
R321	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% 1/4W		
R322	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% 1/4W		
R323	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% 1/4W		
R324	1	1	1	RT05332140	Resistor, 3.3kΩ ±5% 1/4W		
R325	1	1	1	RT05243140	Resistor, 24kΩ ±5% 1/4W		
R326	1	1	1	RT05243140	Resistor, 24kΩ ±5% 1/4W		
R327	1	1	1	RT05394140	Resistor, 390kΩ ±5% 1/4W		
R328	1	1	1	RT05394140	Resistor, 390kΩ ±5% 1/4W		
R329	1	1	1	RT05105140	Resistor, 1MΩ ±5% 1/4W		
R330	1	1	1	RT05105140	Resistor, 1MΩ ±5% 1/4W		
R331	1	1	1	RT05391140	Resistor, 390Ω ±5% 1/4W		
R332	1	1	1	RT05391140	Resistor, 390Ω ±5% 1/4W		
R333	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% 1/4W		
R334	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% 1/4W		
R335	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W		
R336	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W		
R337	1	1	1	RT05101140	Resistor, 100Ω ±5% 1/4W		
R338	1	1	1	RT05101140	Resistor, 100Ω ±5% 1/4W		
R339	1	1	1	RT05101140	Resistor, 100Ω ±5% 1/4W		
R340	1	1	1	RT05201140	Resistor, 200Ω ±5% 1/4W		
C401	1	1	1	EV22502560	Electrolytic Cap., 2.2μF ±20% 25V		
C402	1	1	1	EV22502560	Electrolytic Cap., 2.2μF ±20% 25V		
C403	1	1	1	DD16201010	Ceramic Cap., 200pF ±10% 50V		
C404	1	1	1	DD16201010	Ceramic Cap., 200pF ±10% 50V		
C405	1	1	1	DD16151010	Ceramic Cap., 150pF ±10% 50V		
C406	1	1	1	DD16151010	Ceramic Cap., 150pF ±10% 50V		
C407	1	1	1	EV22600660	Electrolytic Cap., 22μF ±20% 6.3V		
C408	1	1	1	EV22600660	Electrolytic Cap., 22μF ±20% 6.3V		
C409	1	1	1	DD16300010	Ceramic Cap., 30pF ±10% 50V		
C410	1	1	1	DD16300010	Ceramic Cap., 30pF ±10% 50V		
C411	1	1	1	EA47601690	Electrolytic Cap., 47μF ±5% 16V		
C412	1	1	1	EA47601690	Electrolytic Cap., 47μF ±5% 16V		
C413	1	1	1	DD16101010	Ceramic Cap., 100pF ±10% 50V		
C414	1	1	1	DD16101010	Ceramic Cap., 100pF ±10% 50V		
C415	1	1	1	EE22503510	Electrolytic Cap., 2.2μF ±20% 35V		
C416	1	1	1	EE22503510	Electrolytic Cap., 2.2μF ±20% 35V		
C417	1	1	1	DF15152010	Film Cap., 0.0015μF ±5% 50V		
C418	1	1	1	DF15152010	Film Cap., 0.0015μF ±5% 50V		
C419	1	1	1	DF15562010	Film Cap., 0.0056μF ±5% 50V		
C420	1	1	1	DF15562010	Film Cap., 0.0056μF ±5% 50V		
C421	1	1	1	EA10705090	Electrolytic Cap., 100μF ±5% 50V		
C422	1	1	1	EA47601090	Electrolytic Cap., 47μF ±5% 10V		

- (U) for U.S.A.
- (C) for Canada
- (N) for Europe

REF. DESIG.	Q'TY U C N			PART NO.	DESCRIPTION
J401	38	38	38	YP10001130	Plug
J438					
L401	1	1	1	LC11540020	Choke Coil, 150μH
P400	1	1	1	YK22050210	P400 PHONO AMP. & SELECTOR BOARD
	1	1	1	ZZ22050210	P.W. Board
					P.W. Board Assembly
Q401	1	1	1	HT316811B0	Transistor, 2SC1681 (BL)
Q402	1	1	1	HT316811B0	Transistor, 2SC1681 (BL)
Q403	1	1	1	HT316812A0	Transistor, 2SC1681 (GR, BL)
Q404	1	1	1	HT316812A0	Transistor, 2SC1681 (GR, BL)
Q405	1	1	1	HT316811B0	Transistor, 2SC1681 (BL)
Q406	1	1	1	HT316811B0	Transistor, 2SC1681 (BL)
R401	1	1	1	RT05913140	Resistor, 91kΩ ±5% 1/4W
R402	1	1	1	RT05913140	Resistor, 91kΩ ±5% 1/4W
R403	1	1	1	RT05471140	Resistor, 470Ω ±5% 1/4W
R404	1	1	1	RT05471140	Resistor, 470Ω ±5% 1/4W
R405	1	1	1	RT05394140	Resistor, 390kΩ ±5% 1/4W
R406	1	1	1	RT05394140	Resistor, 390kΩ ±5% 1/4W
R407	1	1	1	RT05223140	Resistor, 22kΩ ±5% 1/4W
R408	1	1	1	RT05223140	Resistor, 22kΩ ±5% 1/4W
R409	1	1	1	RT05681140	Resistor, 680Ω ±5% 1/4W
R410	1	1	1	RT05681140	Resistor, 680Ω ±5% 1/4W
R411	1	1	1	RT05104140	Resistor, 100kΩ ±5% 1/4W
R412	1	1	1	RT05104140	Resistor, 100kΩ ±5% 1/4W
R413	1	1	1	RT05303140	Resistor, 30kΩ ±5% 1/4W
R414	1	1	1	RT05303140	Resistor, 30kΩ ±5% 1/4W
R415	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% 1/4W
R416	1	1	1	RT05562140	Resistor, 5.6kΩ ±5% 1/4W
R417	1	1	1	RT05182140	Resistor, 1.8kΩ ±5% 1/4W
R418	1	1	1	RT05182140	Resistor, 1.8kΩ ±5% 1/4W
R419	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% 1/4W
R420	1	1	1	RT05472140	Resistor, 4.7kΩ ±5% 1/4W
R421	1	1	1	RT05224140	Resistor, 220kΩ ±5% 1/4W
R422	1	1	1	RT05224140	Resistor, 220kΩ ±5% 1/4W
R423	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W
R424	1	1	1	RT05473140	Resistor, 47kΩ ±5% 1/4W
R425	1	1	1	RT05152140	Resistor, 1.5kΩ ±5% 1/4W
R426	1	1	1	RT05152140	Resistor, 1.5kΩ ±5% 1/4W
R427	1	1	1	RT05564140	Resistor, 560kΩ ±5% 1/4W
R428	1	1	1	RT05564140	Resistor, 560kΩ ±5% 1/4W
R429	1	1	1	RT05101140	Resistor, 100Ω ±5% 1/4W
R430	1	1	1	GF05330120	Resistor, 33Ω ±5% 1/4W
R431	1	1	1	GF05390140	Resistor, 39Ω ±5% 1/4W
S401	1	1	1	SR10050130	Rotary Switch, Selector
C701	1	1	1	EE33502540	Electrolytic Cap., 3.3μF ±20% 25V
C702	1	1	1	EE33502540	Electrolytic Cap., 3.3μF ±20% 25V
C703	1	1	1	DD16201010	Ceramic Cap., 200pF ±10% 50V
C704	1	1	1	DD16201010	Ceramic Cap., 200pF ±10% 50V
C705	1	1	1	EE47601640	Electrolytic Cap., 47μF ±20% 16V
C706	1	1	1	EE47601640	Electrolytic Cap., 47μF ±20% 16V
C707	1	1	1	DD11050500	Ceramic Cap., 5pF ±0.25pF 500V
C708	1	1	1	DD11050500	Ceramic Cap., 5pF ±0.25pF 500V
C709	1	1	1	EA47605090	Electrolytic Cap., 47μF ±20% 50V
C710	1	1	1	EA47605090	Electrolytic Cap., 47μF ±20% 50V
C711	1	1	1	DF16103050	Film Cap., 0.01μF ±10% 50V

REF. DESIG.	Q'TY U C N			PART NO.	DESCRIPTION
C712	1	1	1	DF16103050	Film Cap., 0.01μF ±10% 50V
C713	1	1	1	DF16103050	Film Cap., 0.01μF ±10% 50V
C714	1	1	1	DF16103050	Film Cap., 0.01μF ±10% 50V
C715	1	1	1	DF17104010	Film Cap., 0.1μF ±20% 50V
C716	1	1	1	DF17104010	Film Cap., 0.1μF ±20% 50V
C717	1	1	1	DF17104010	Film Cap., 0.1μF ±20% 50V
C718	1	1	1	DF17104010	Film Cap., 0.1μF ±20% 50V
C719	1	1	1	EE10601640	Electrolytic Cap., 10μF ±20% 16V
C720	1	1	1	EE10601640	Electrolytic Cap., 10μF ±20% 16V
C721	1	1	1	EE10601640	Electrolytic Cap., 10μF ±20% 16V
C722	1	1	1	EE10601640	Electrolytic Cap., 10μF ±20% 16V
C723	1	1	1	DK16101500	Ceramic Cap., 100pF ±10% 500V
C724	1	1	1	DK16101500	Ceramic Cap., 100pF ±10% 500V
C725	1	1	1	DK16101500	Ceramic Cap., 100pF ±10% 500V
C726	1	1	1	DK17104520	Film Cap., 0.1μF ±20% 200V
C727	1	1	1	DF17104520	Film Cap., 0.1μF ±20% 200V
C728	1	1	1	EA22705090	Electrolytic Cap., 220μF ±50% 50V
C729	1	1	1	EA47601690	Electrolytic Cap., 47μF ±50% 16V
C730	1	1	1	EA47601690	Electrolytic Cap., 220μF ±50% 10V
C731	1	1	1	EA22701090	Electrolytic Cap., 220μF ±50% 10V
C732	1	1	1	DK18103510	Ceramic Cap., 0.01μF ±10% 500V
C733	1	1	1	EA47706310	Electrolytic Cap., 470μF ±50% 63V
C734	1	1	1	EA10706310	Electrolytic Cap., 100μF ±50% 63V
C735	1	1	1	EA33605090	Electrolytic Cap., 33μF ±50% 50V
C736	1	1	1	DF17473050	Film Cap., 0.047μF ±20% 50V
C737	1	1	1	EA10701690	Electrolytic Cap., 100μF ±50% 16V
C738	1	1	1	EA10605090	Electrolytic Cap., 10μF ±50% 50V
C739	1	1	1	EA10801690	Electrolytic Cap., 1000μF ±50% 16V
C740	1	1	1	EE10605040	Electrolytic Cap., 10μF ±20% 50V
F701	1	1	1	FS10100080	Fuse, MGC 1A 30mm
F701				FS10100080	Fuse, SGA 1A 20mm SEMKO
F702	1	1	1	FS10200060	Fuse, MGA 2A 30mm
F702				FS10200080	Fuse, SGA 2A 20mm SEMKO
J701		28	28	YP10001130	Plug
J728					
J729					
J730		4	4	YJ08000210	Jack, Fuse Holder
J732					
J733		4	4	YJ05000260	Jack, Tr. Socket
J736					
J737	1	1	1	YP10001130	Plug, Pin
J738	1	1	1	YP10001130	Plug, Pin
J739	1	1	1	YP10001130	Plug, Pin
L701	1	1	1	LC22620010	Choke Coil, 2.6μH
L702	1	1	1	LC22620010	Choke Coil, 2.6μH
L703	1	1	1	LY40240050	Relay
					P700 MAIN AMP. & POWER SUPPLY BOARD
P700	1	1	1	YG22070010	P.W. Board
				ZZ22070010	P.W. Board Assembly
Q701	1	1	1	HT107502B0	Transistor, 2SA 750 (T, U)
Q702	1	1	1	HT107502B0	Transistor, 2SA 750 (T, U)
Q703	1	1	1	HT107502B0	Transistor, 2SA 750 (T, U)
Q704	1	1	1	HT107502B0	Transistor, 2SA 750 (T, U)
Q705	1	1	1	HT318853B0	Transistor, 2SC1885 (Q, R, S)
Q706	1	1	1	HT318853B0	Transistor, 2SC1885 (Q, R, S)

• (U) for U.S.A.
 • (C) for Canada.
 • (N) for Europe

REF. DESIG.	Q'TY U C N			PART NO.	DESCRIPTION		REF. DESIG.	Q'TY U C N			PART NO.	DESCRIPTION	
Q707	1	1	1	HT315672B0	Transistor,	2SC1567 (Q, R)	R711	1	1	1	RA05020200	Trimming Resistor,	5kΩ (B)
Q708	1	1	1	HT315672B0	Transistor,	2SC1567 (Q, R)	R712	1	1	1	RA05020200	Trimming Resistor,	5kΩ (B)
Q709	1	1	1	HT107942B0	Transistor,	2SA 794 (Q, R)	R713	1	1	1	RT05103140	Resistor,	10kΩ ±5% 1/4W
Q710	1	1	1	HT107942B0	Transistor,	2SA 794 (Q, R)	R714	1	1	1	RT05103140	Resistor,	10kΩ ±5% 1/4W
Q711	1	1	1	HT403883A0	Transistor,	2SD 388 (S, R, Q)	R715	1	1	1	RT05224140	Resistor,	220kΩ ±5% 1/4W
Q712	1	1	1	HT403883A0	Transistor,	2SD 388 (S, R, Q)	R716	1	1	1	RT05224140	Resistor,	220kΩ ±5% 1/4W
Q713	1	1	1	HT205413A0	Transistor,	2SB 541 (S, R, Q)	R717	1	1	1	RT05302140	Resistor,	3kΩ ±5% 1/4W
Q714	1	1	1	HT205413A0	Transistor,	2SB 541 (S, R, Q)	R718	1	1	1	RT05302140	Resistor,	3kΩ ±5% 1/4W
Q715	1	1	1	HT309451Q0	Transistor,	2SC 945 (Q)	R719	1	1	1	RT05333140	Resistor,	33kΩ ±5% 1/4W
Q716	1	1	1	HT309451Q0	Transistor,	2SC 945 (Q)	R720	1	1	1	RT05333140	Resistor,	33kΩ ±5% 1/4W
Q717	1	1	1	HT107331Q0	Transistor,	2SA 733 (Q)	R721	1	1	1	GF05330140	Resistor,	33Ω ±5% 1/4W
Q718	1	1	1	HT107331Q0	Transistor,	2SA 733 (Q)	R722	1	1	1	GF05330140	Resistor,	33Ω ±5% 1/4W
Q719	1	1	1	HV00003120	Varistor,	MV-13	R723	1	1	1	RT05302140	Resistor,	3kΩ ±5% 1/4W
Q720	1	1	1	HV00003120	Varistor,	MV-13	R724	1	1	1	RT05302140	Resistor,	3kΩ ±5% 1/4W
Q721	1	1	1	HV00003120	Varistor,	MV-13	R725	1	1	1	RT05302140	Resistor,	3kΩ ±5% 1/4W
Q722	1	1	1	HV00003120	Varistor,	MV-13	R726	1	1	1	RT05302140	Resistor,	3kΩ ±5% 1/4W
Q723	1	1	1	HD20002210	Diode,	1S2472 (GR)	R727	1	1	1	RT05152140	Resistor,	1.5kΩ ±5% 1/4W
Q724	1	1	1	HD20002210	Diode,	1S2472 (GR)	R728	1	1	1	GF05330120	Resistor,	33Ω ±5% 1/4W
Q725	1	1	1	HD20002210	Diode,	1S2472 (GR)	R729	1	1	1	RT05820140	Resistor,	82Ω ±5% 1/4W
Q726	1	1	1	HD20002210	Diode,	1S2472 (GR)	R730	1	1	1	RT05820140	Resistor,	82Ω ±5% 1/4W
Q727	1	1	1	HD20002210	Diode,	1S2472 (GR)	R731	1	1	1	RA01020210	Trimming Resistor,	1kΩ (B)
Q728	1	1	1	HD20002210	Diode,	1S2472 (GR)	R732	1	1	1	RA01020210	Trimming Resistor,	1kΩ (B)
Q729	1	1	1	HD20002210	Diode,	1S2472 (GR)	R733	1	1	1	RT05161140	Resistor,	160Ω ±5% 1/4W
Q730	1	1	1	HD20002210	Diode,	1S2472 (GR)	R734	1	1	1	RT05161140	Resistor,	160Ω ±5% 1/4W
Q731	1	1	1	HD20002210	Diode,	1S2472 (GR)	R735	1	1	1	GF05271140	Resistor,	270Ω ±5% 1/4W
Q732	1	1	1	HD20002210	Diode,	1S2472 (GR)	R736	1	1	1	GF05271140	Resistor,	270Ω ±5% 1/4W
Q733	1	1	1	HD20002210	Diode,	1S2472 (GR)	R737	1	1	1	GF05271140	Resistor,	270Ω ±5% 1/4W
Q734	1	1	1	HD20002210	Diode,	1S2472 (GR)	R738	1	1	1	GF05271140	Resistor,	270Ω ±5% 1/4W
Q735	1	1	1	HH00003030	Thermistor,	STD-04	R739	1	1	1	GF05221140	Resistor,	220Ω ±5% 1/4W
Q736	1	1	1	HH00003030	Thermistor,	STD-04	R740	1	1	1	GF05221140	Resistor,	220Ω ±5% 1/4W
Q737	1	1	1	HD20005010	Diode,	W06B	R741	1	1	1	GF05221140	Resistor,	220Ω ±5% 1/4W
Q738	1	1	1	HD20005010	Diode,	W06B	R742	1	1	1	GF05221140	Resistor,	220Ω ±5% 1/4W
Q739	1	1	1	HD20005010	Diode,	W06B	R743	1	1	1	GF05221140	Resistor,	220Ω ±5% 1/4W
Q740	1	1	1	HD20005010	Diode,	W06B	R744	1	1	1	GF05221140	Resistor,	220Ω ±5% 1/4W
Q741	1	1	1	HV00005080	Varistor,	STV-3H (Y)	R745	1	1	1	GF05271140	Resistor,	270Ω ±5% 1/4W
Q742	1	1	1	HV00005080	Varistor,	STV-3H (Y)	R746	1	1	1	GF05271140	Resistor,	270Ω ±5% 1/4W
Q743	1	1	1	HT309452A0	Transistor,	2SC 945 (R, Q)	R747	1	1	1	GF05222140	Resistor,	2.2kΩ ±5% 1/4W
Q744	1	1	1	HT309452A0	Transistor,	2SC 945 (R, Q)	R748	1	1	1	GF05222140	Resistor,	2.2kΩ ±5% 1/4W
Q745	1	1	1	HT313182C0	Transistor,	2SC1318 (R, S)	R749	1	1	1	GF05242140	Resistor,	2.4kΩ ±5% 1/4W
Q746	1	1	1	HD20003210	Diode,	1S2471 (BK)	R750	1	1	1	GF05242140	Resistor,	2.4kΩ ±5% 1/4W
Q747	1	1	1	HD20011030	Diode,	DS-131B	R751	1	1	1	GF05273140	Resistor,	27kΩ ±5% 1/4W
Q748	1	1	1	HD20012030	Diode,	DS-132B	R752	1	1	1	GF05273140	Resistor,	27kΩ ±5% 1/4W
Q749	1	1	1	HD20005010	Diode,	W06B	R753	1	1	1	GF05100140	Resistor,	10Ω ±5% 1/4W
Q750	1	1	1	HT318853B0	Transistor,	2SC1885 (Q, R, S)	R754	1	1	1	GF05100140	Resistor,	10Ω ±5% 1/4W
Q751	1	1	1	HT309452A0	Transistor,	2SC 945 (P, Q)	R755	1	1	1	GF05100140	Resistor,	10Ω ±5% 1/4W
Q752	1	1	1	HD30025090	Zener,	WZ-15C	R756	1	1	1	GF05100140	Resistor,	10Ω ±5% 1/4W
Q753	1	1	1	HT403302A0	Transistor,	2SD330 (D, E)	R757	1	1	1	GF05151120	Resistor,	150Ω ±5% 1/4W
Q754	1	1	1	HD20005010	Diode,	W06B	R758	1	1	1	GF05151120	Resistor,	150Ω ±5% 1/4W
R701	1	1	1	RT05102140	Resistor,	1kΩ ±5% 1/4W	R759	1	1	1	GF05151120	Resistor,	150Ω ±5% 1/4W
R702	1	1	1	RT05102140	Resistor,	1kΩ ±5% 1/4W	R760	1	1	1	GF05151120	Resistor,	150Ω ±5% 1/4W
R703	1	1	1	RT05333140	Resistor,	33kΩ ±5% 1/4W	R761	1	1	1	GJ05100020	Resistor,	10Ω ±5% 2W
R704	1	1	1	RT05333140	Resistor,	33kΩ ±5% 1/4W	R762	1	1	1	GJ05100020	Resistor,	10Ω ±5% 2W
R705	1	1	1	RT05682140	Resistor,	6.8kΩ ±5% 1/4W	R763	1	1	1	GW10392030	Resistor,	0.39Ω ±10% 3W
R706	1	1	1	RT05682140	Resistor,	6.8kΩ ±5% 1/4W	R764	1	1	1	GW10392030	Resistor,	0.39Ω ±10% 3W
R707	1	1	1	RT05102140	Resistor,	1kΩ ±5% 1/4W	R765	1	1	1	GW10392030	Resistor,	0.39Ω ±10% 3W
R708	1	1	1	RT05102140	Resistor,	1kΩ ±5% 1/4W	R766	1	1	1	GW10392030	Resistor,	0.39Ω ±10% 3W
R709	1	1	1	RT05472140	Resistor,	4.7kΩ ±5% 1/4W	R767	1	1	1	RC10022120	Resistor,	2.2Ω ±10% 1/4W
R710	1	1	1	RT05472140	Resistor,	4.7kΩ ±5% 1/4W							

• (U) for U.S.A.
 • (C) for Canada
 • (N) for Europe

REF. DESIG.	QTY			PART NO.	DESCRIPTION		
	U	C	N				
R768	1	1	1	RC10022120	Resistor,	2.2Ω ±10%	1/2W
R769	1	1	1	RC10562120	Resistor,	5.6kΩ ±10%	1/2W
R770	1	1	1	RC10562120	Resistor,	5.6kΩ ±10%	1/2W
R771	1	1	1	RT05223140	Resistor,	22kΩ ±5%	1/4W
R772	1	1	1	RT05183140	Resistor,	18kΩ ±5%	1/4W
R773	1	1	1	RT05682140	Resistor,	6.8kΩ ±5%	1/4W
R774	1	1	1	RT05393140	Resistor,	39kΩ ±5%	1/4W
R775	1	1	1	RT05154140	Resistor,	150kΩ ±5%	1/4W
R776	1	1	1	GJ05391010	Resistor,	390Ω ±5%	1W
R777	1	1	1	GJ05331020	Resistor,	330Ω ±5%	2W
R778	1	1	1	GJ05331020	Resistor,	330Ω ±5%	2W
R779	1	1	1	GU05151120	Resistor,	150Ω ±5%	1/2W
R780	1	1	1	GU05151120	Resistor,	150Ω ±5%	1/2W
R781	1	1	1	GS10101070	Resistor,	100Ω ±10%	7W
R782	1	1	1	GF05220120	Resistor,	22Ω ±5%	1/2W
R783	1	1	1	RT05152140	Resistor,	1.5kΩ ±5%	1/4W
R784	1	1	1	RT05152140	Resistor,	1.5kΩ ±5%	1/4W
R785	1	1	1	RT05392140	Resistor,	3.9kΩ ±5%	1/4W
R786	1	1	1	RT05223140	Resistor,	22kΩ ±5%	1/4W
R787	1	1	1	RA05020200	Trimming Resistor,	5kΩ (B)	
R788	1	1	1	RT05153140	Resistor,	15kΩ ±5%	1/4W
R789	1	1	1	GF05100140	Resistor,	10Ω ±5%	1/4W
S701	1	1	1	SP04020200	Pushswitch,		

18. TECHNICAL SPECIFICATIONS

FOR U.S.A. MODEL ONLY

AMPLIFIER SECTION:

RATED POWER OUTPUT, MINIMUM CONTINUOUS AVERAGE POWER PER CHANNEL, BOTH CHANNELS DRIVEN.	38W
POWER BAND	20 Hz to 20 kHz
TOTAL HARMONIC DISTORTION	0.08%
LOAD IMPEDANCE	8 OHMS
RATED POWER OUTPUT, MINIMUM CONTINUOUS AVERAGE POWER PER CHANNEL, BOTH CHANNELS DRIVEN.	48W
POWER BAND	20 Hz to 20 kHz
TOTAL HARMONIC DISTORTION	0.1%
LOAD IMPEDANCE	4 OHMS

I.M. Distortion

(I.H.F. method, 60 Hz and 7 kHz mixed 4:1 at rated power output)	
at 8 ohm load impedance	0.08%
at 4 ohm load impedance	0.1%
Damping Factor (at 20 Hz)	45
Sensitivity (at MAIN IN)	1.5V
Impedance (at MAIN IN)	33k ohms
Frequency Response for Power Amp Only (at 1 Watt output, 20 Hz to 20 kHz)	±0.25 dB

PREAMPLIFIER SECTION:

Phono	
Input Overload at 1 kHz	100 mV
Equivalent Input Noise	1.5μV
Dynamic Range (Dynamic Range is the ratio of input overload to equivalent input noise)	96 dB
Input Sensitivity	1.8 mV
Input Impedance	47k ohms
Input Capacitance	100 pF
Frequency Response, RIAA 20 Hz to 20 kHz	±1.0 dB
Signal-to-Noise Ratio (at rated output and 7.75 mV input)	76 dB
High Level (Aux and Tape)	
Input Sensitivity	180 mV
Input Impedance	20k ohms
Frequency Response (includes power amp)	10 Hz to 60 kHz ± 1.25 dB
Signal-to-Noise Ratio (ref. to rated output and 775 mV input)	90 dB
Output Levels	
Tape Out (ref. 7.75 mV at Phono inputs)	775 mV
Pre-Out (ref. 180 mV at Aux inputs)	1.5V
(ref. 500 mV at Aux inputs, main amp disconnected)	4.2V
Output Impedance	
Tape Out	600 ohms
Pre-Out	900 ohms

FM TUNER SECTION:

Sensitivity	
IHF Usable	10.8 dBf (1.9μV)
IHF 50 dB Quieting (Mono)	16.1 dBf (3.2μV)
(Stereo)	37.3 dBf (40μV)
Quieting Slope (Mono)	
RF Input for 30 dB Quieting	9.3 dBf (1.6μV)
Quieting at:	
20 dBf (5.5μV)	55 dB
25 dBf (10μV)	60 dB
40 dBf (55μV)	70 dB
65 dBf (1000μV)	75 dB
Quieting Slope (Stereo)	
Quieting at:	
30 dBf (17μV)	42 dB
40 dBf (55μV)	53 dB

50 dBf (173μV)	58 dB
65 dBf (1000μV)	65 dB
Distortion (Mono) at 65 dBf (1000μV)	
100 Hz	0.25%
1000 Hz	0.15%
6000 Hz	0.35%
Distortion (Stereo) at 65 dBf (1000μV)	
100 Hz	0.35%
1000 Hz	0.3%
6000 Hz	0.55%
Distortion (Mono and Stereo) at 50 dB Quieting, 1000 Hz	0.6%
Hum and Noise at 65 dBf (1000μV)	
Mono	73 dB
Frequency Response	
30 Hz to 15 kHz	
Mono	+0.2 dB, -1.5 dB
Stereo	±1.5 dB
Capture Ratio at 65 dBf (1000μV)	1.0 dB
Alternate Channel Selectivity	70 dB
Spurious Response Rejection	90 dB
Image Response Rejection	60 dB
I.F. Rejection (Balanced)	90 dB
A.M. Suppression	50 dB
Stereo Separation	
100 Hz	40 dB
1000 Hz	45 dB
10 kHz	40 dB
Subcarrier Rejection	60 dB

AM TUNER SECTION:

IHF Usable Sensitivity	15μV
Distortion (THD), 30% Modulation	0.5%
Signal-to-Noise Ratio	50 dB
Alternate Channel Selectivity	46 dB
Image Rejection	45 dB
Spurious Response Rejection	60 dB
I.F. Rejection	40 dB

GENERAL:

Power Requirements	120V AC, 60 Hz
Power Consumption at rated output, both channels operating	170W
Idling Power (Volume Control at zero)	27W
Dimensions:	
Panel Width	440 mm (17-5/16 inches)
Panel Height	137 mm (5-3/8 inches)
Depth	362 mm (14-1/2 inches)
Weight:	
Unit alone	12.5 kg (27.5 lbs.)
Packed for Shipment	15.0 kg (33.0 lbs)

FOR EUROPEAN MODEL ONLY

AUDIO SECTION

POWER OUTPUT AT 1% DISTORTION	72W
RATED POWER OUTPUT, 1 kHz	53W
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT, 1 kHz	0.1%
I.M. DISTORTION AT RATED POWER OUTPUT (I.H.F. METHOD, 300 Hz AND 10 kHz MIXED 4:1 AT RATED POWER OUTPUT)	0.1%
POWER BANDWIDTH, 1/2 RATED POWER OUTPUT	8 Hz ~ 30 kHz
LOAD IMPEDANCE	4 OHMS
POWER OUTPUT AT 1% DISTORTION	52W
RATED POWER OUTPUT, 1 kHz	42W
TOTAL HARMONIC DISTORTION AT RATED POWER OUTPUT, 1 kHz	0.08%
I.M. DISTORTION AT RATED POWER OUTPUT (I.H.F. METHOD, 300 Hz AND 10 kHz MIXED 4:1 AT RATED POWER OUTPUT)	0.1%
POWER BANDWIDTH, 1/2 RATED POWER OUTPUT	8 Hz ~ 30 kHz
LOAD IMPEDANCE	8 OHMS

Damping Factor, SP Output	
40 Hz	60
1 kHz	60
12.5 kHz	40
Frequency Response	
Phono ± 2 dB	18 Hz ~ 30 kHz
Aux ± 1.5 dB	10 Hz ~ 40 kHz
Main In ± 1.5 dB	10 Hz ~ 40 kHz
Signal-to-Noise Ratio, 1 kHz	
Phono	50 dB
Aux	50 dB
Main In	55 dB
Input Sensitivity, 1 kHz (Rated Input Voltage)	
Phono	1.8 mV
Aux	180 mV
Main In	1.5V
Input Impedance, 1 kHz	
Phono	47k ohms
Aux	20k ohms
Main In	33k ohms
Phono Equivalent Input Noise	1.5μV
Phono Dynamic Range	92 dB
Phono Input Capacitance	100 pF
Channel Balance	
Phono 0 ~ -40 dB	2.5 dB
Aux 40 ~ 16 kHz	2.0 dB
Main In	1.0 dB
Interchannel Crosstalk	
Phono 1 kHz	38 dB
250 Hz ~ 10 kHz	30 dB
Aux 1 kHz	43 dB
250 Hz ~ 10 kHz	30 dB
Tape 1 kHz	43 dB
250 Hz ~ 10 kHz	30 dB
Main In 1 kHz	55 dB
250 Hz ~ 10 kHz	50 dB
Intersource Crosstalk, Worst Point	
1 kHz	43 dB
250 Hz ~ 10 kHz	30 dB
Output Voltage, 1 kHz	
Tape Out	0.18V
Pre Out	1.5V
Output Impedance, 1 kHz	
Tape Out	50 ohms
Pre Out	600 ohms
Overload Margin, 1 kHz	
Phono	33 dB
Aux	50 dB
Power Consumption	
Idling	30W
Rated Power, 1 kHz	175W
FM TUNER SECTION:	
Frequency Range	87.5 ~ 108 MHz
Usable Sensitivity 40 kHz Deviation, 98 MHz	
Mono S/N 26 dB	1.6μV
Stereo S/N 46 dB	47μV
Alternate Channel Selectivity 98 MHz, ±300 kHz	50 dB
Image Response Rejection, 98 MHz	60 dB

IF Rejection, 98 MHz	80 dB
Spurious Response Rejection, 98 MHz	80 dB
AM Suppression, 98 MHz	50 dB
Signal-to-Noise Ratio at 98 MHz	
Un-weighted Mono	65 dB
Stereo	58 dB
Weighted Mono	68 dB
Stereo	62 dB
Pilot Signal & Subcarrier Rejection	
19 kHz	60 dB
38 kHz	65 dB
Total Harmonic Distortion at 98 MHz	
Mono	0.2%
Stereo	0.4%
Frequency Response	
30 Hz ~ 15 kHz	+0.2 dB, -2.0 dB
Separation	
250 ~ 6.3 kHz	40 dB
6.3 kHz ~ 12.5 kHz	35 dB
Channel Balance	
Output Voltage, 1 kHz	565 mV
Output Impedance, 1 kHz	2.3k ohms
Acceptable Load Impedance, 1 kHz	47k ohms
Antenna Terminals	
Balanced	300 ohms
Unbalanced	75 ohms
AM TUNER SECTION:	
Frequency Range	515 ~ 1650 kHz
Usable Sensitivity 26 dB S/N 30% Mod., 1 MHz	25μV
Selectivity 1 MHz, ±9 kHz	20 dB
Image Rejection, 1 MHz	18 dB
IF Rejection, 1 MHz	3 dB
Spurious Response Rejection, 1 MHz	60 dB
Signal-to-Noise Ratio, 1 MHz	52 dB
Frequency Response 1 MHz, ±3 dB	40 Hz ~ 2.3 kHz
Total Harmonic Distortion, 1 MHz	0.5%
GENERAL:	
Power Requirements	220V ~ 50 Hz
(E and N versions are featuring an external voltage selector for use on 110/120/240V. Other versions can be converted by a qualified technician to operate on 110/120/240V.)	
Power Consumption at rated output, both channels operating	170W ± 15W
Idling Power	33W ± 7W
Semiconductor Complement	
Integrated Circuits	3
Transistors	46
Diodes	34
Field Effect Transistors	1
Dimensions	
Panel Width	440 mm (17-5/16 inches)
Panel Height	137 mm (5-25/64 inches)
Depth	365 mm (14-3/8 inches)
Weight	
Unit Alone	12.5 kg (27.5 lbs)
Packed for Shipment	15.0 kg (33.0 lbs)

Model 2728B



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